Gene Screen

The invention relates to a screen for the identification of genes which show regulated expression in response to carbon source utilisation.

Colorectal cancer is a cancer which occurs in the large intestine and rectum. The colon can be divided into effectively four sections; the ascending colon; the transverse colon; the descending colon; and the sigmoid colon. Most colorectal cancers arise in the sigmoid colon and develop from "polyps" which can grow for several years before becoming cancerous. The early detection of these pre-cancerous growths is obviously desirable since removal of the polyps is a very effective means to stem the progress of disease.

There are various types of colorectal cancer. Most cancers of this type are adenocarcinomas which are malignant growths which begin in the epithelial cells which line the colon and rectum. Other cancers of the colon and rectum include gastrointestinal stromal tumours and lymphomas. In some examples the patient can be asymptomatic and for this reason it is important that screening is undertaken to identify those patients in which pre-cancerous polyps are forming. However, some patients do present with symptoms and these include rectal bleeding, diarrhoea, constipation, abdominal pain, and general weakness.

As mentioned above, regular screening is by far the most effective way of controlling this disease since removal of pre-cancerous polyps by surgery can effectively cure any disease before it is initiated. Currently, diagnostic tests include the use of colonoscopy, which allows a doctor to examine the rectum and colon; faecal blood analysis to check for any bleeding from the bowel and rectal area although this test is not directly diagnostic for cancerous lesion in its own right; and sigmoidoscopy which is similar to colonoscopy but only investigates the lower bowel area. Typically, patients with a family history of colorectal cancer can be expected to have

a colonoscopy every 5 years or so and a blood stool check on a yearly basis from about the age of 40.

The treatment of colorectal cancer usually involves invasive surgery to remove polyps and/or malignant growths. If the cancer has developed beyond the polyp stage then more extensive surgery is required which can result in removal of part of the bowel and surrounding lymph nodes. In the situation where a cancer necessitates extensive surgery a colostomy stoma may be required, at least for a period, to allow the bowel to recover from surgery. Surgery in the rectal region is more complicated and is largely dependent on how far the disease has progressed. In some cases the surgery can damage nerves which control sexual and urinary functions. In advanced stage colorectal cancers metastatic lesions may require removal and in about 15% of cases the lesions are in the liver which requires removal of large parts of the liver. The surgical removal of polyps and/or cancerous growths leads to a good prognosis for patients. In some cases surgery is followed by a course of chemotherapy (for colon cancer) and chemotherapy and radiation therapy (rectal cancer) to remove any cancer cells not detected during surgery. The chemotherapeutic agents typically used to treat colorectal cancer include 5-fluorouracil, leucovorin, irinotecan and capecitabine.

It is apparent that the early detection of cells which are pre-cancerous is highly desirable since in most cases surgery to remove these cells results in a very good prognosis for patients. Diagnostic tests which use the detection of cancer markers as an early indicator of cancer are known in the art.

For example, EP1355149 describes gene expression profiles from colorectal samples to provide a "finger print" expression profile as an indication of whether a patient is susceptible to the development of colorectal cancer or indeed if malignant growth has already been initiated. The disclosure in EP1355149 is directed to the use of microarrays to compare transformed and non-transformed tissue gene expression in a global sense.

WO02/059609 also describes a gene screen which utilises expression profiles in breast and colorectal cancer. A comparison is made between "normal" and "abnormal" samples in patients to provide a global picture of gene expression in these samples as an indicator of particular genes which are either over-expressed or abrogated between samples. Both EP1355149 and WO02/059609 take a shot gun approach to screening for target genes which can be used either as a diagnostic tool or as a target for the development of new chemotherapeutic agents.

The present invention provides a targeted screen for genes the expression of which may be altered in a response to carbon source. The invention makes use of the differences in expression profiles between normal and diseased tissue as a consequence of differences in metabolic state between cancer cells and normal cells due in part to carbon source utilisation by these respective cell types. The epithelial cells which line the colon and rectum metabolise butyrate as a carbon source for energy transduction via glycolysis. The main carbon source utilised by tumour cells is glucose. Consequently, expression profiles between these cell types are different due to the differences in carbon source metabolism.

We have identified a large number of potential markers of colorectal cancer which have utility with respect to the early diagnosis of disease and as targets for the development of novel chemotherapeutic agents. Moreover, this assay has broader applicability to conditions resulting from dysfunction of the bowel (e.g colitis, ulcerative colitis, diversion colitis. Crohn's disease and irritable bowel syndrome. In addition the assay provides a screening tool for fibre consumption and as an assay for colon microflora functionality (the effectiveness of fermentation of specific fibres) .

According to an aspect of the invention there is provided a method to screen for nucleic acid molecules which show altered expression in an isolated first cell sample comprising comparing the gene expression profiles between said first cell sample with a second reference cell sample wherein said first cell sample has been grown in

the presence of the carbon source butyrate, or a related carbon source from which butyrate is derived, either directly or indirectly, and comparing said expression profile with the expression profile in said second reference cell sample which has not been grown in the presence of butyrate, or said related carbon source.

According to a further aspect of the invention there is provided a method to screen for nucleic acid molecules which show altered expression in an isolated biological sample comprising the steps of:

i) providing

a) a cell growth preparation comprising a first cell sample derived from at least one region of the colon; cell growth media; and a carbon source wherein said carbon source is butyrate; and

b) a cell growth preparation comprising a second cell sample derived from an equivalent region of the colon; cell growth media; and a carbon source which is not butyrate;

ii) extracting nucleic acid from said first and second cell samples; and

iii) comparing the gene expression profile in said first cell sample with the gene expression profile in said second cell sample.

In a preferred method of the invention said first and second cell samples are derived from the ascending colon.

In an alternative preferred method of the invention said first and second cell samples are derived from the transverse colon.

In a further preferred method of the invention said first and second samples are derived from the descending colon.

In a still further preferred method of the invention said first and second samples are derived from the sigmoid region of the colon. Preferably said cell samples are derived from the rectal region of the colon.

In a further preferred method of the invention said first and second cell samples comprise epithelial cells.

In a preferred method of the invention said carbon source which is not butyrate is glucose.

In a still further preferred method of the invention said nucleic acid molecule which shows altered expression is selected from the group as represented by the nucleic acid sequences shown in Table 1, or nucleic acid molecules which hybridise to the sequences presented Table 1. Preferably said nucleic acid molecules hybridise under stringent hybridisation conditions.

According to a further aspect of the invention there is provided a method for the detection of at least one nucleic acid molecule associated with the initiation and/or progression of colorectal cancer, in an animal, comprising the steps of:

i) providing a biological sample comprising at least one cell to be tested;

ii) contacting said sample with a ligand which binds at least one nucleic acid molecule as represented by the nucleic acid sequence selected from the group consisting of:

a) a nucleic acid molecule as represented by the nucleic acid sequence as shown in Table 1;

b) a nucleic acid molecule which hybridises to nucleic acid molecules as defined in (a);

c) a nucleic acid molecule that is degenerate as a consequence of the genetic code to the nucleic acid molecule represented in (a) and (b);

iii) detecting the presence of at least one nucleic acid molecule in said sample.

In a preferred method of the invention said animal is human.

In a further preferred method of the invention said colorectal cancer is adenocarcinoma.

In a preferred method of the invention said ligand is a nucleic acid molecule adapted to anneal to said nucleic acid molecule which is indicative of colorectal cancer.

It will be apparent to the skilled person that a number of nucleic acid based assay systems are available which can be adapted to detect nucleic acid molecules as hereindisclosed. For example quantitative polymerase chain reaction assays, *in situ* hybridisation, northern blots.

According to a further aspect of the invention there is provided a method for the detection of at least one polypeptide associated with the initiation and/or progression of colorectal cancer, in an animal, comprising the steps of:

i) providing a biological sample comprising at least one cell to be tested;

ii) contacting said sample with at least one ligand which ligand specifically binds at least one polypeptide encoded by a nucleic acid molecule as represented by the nucleic acid sequence shown in Table 1, or a variant polypeptide comprising an amino acid sequence which varies by the addition, deletion or substitution of at least one amino acid residue; and

iii) detecting the presence of at least one polypeptide in said sample.

In a preferred method of the invention said animal is human.

In a further preferred embodiment of the invention said ligand is an antibody, preferably a monoclonal antibody, or at least the effective binding part thereof.

Methods which utilise antibodies to detect the presence of a polypeptide in a biological sample are well known in the art and include ELISA's, western blot and immunofluoresence.

According to a further aspect of the invention there is provided the use of at least one polypeptide, or variant sequence thereof, encoded by a nucleic acid molecule(s) as represented by the nucleic acid sequences as shown in Table 1, as a target for the screening of agents which modulate the activity of said polypeptide.

According to a yet further aspect of the invention there is provided a method to screen for agents which modulate the activity of at least one gene associated with the initiation and/or progression of colorectal cancer comprising the steps of:

i) forming a preparation comprising at least one polypeptide wherein said polypeptide is encoded by a nucleic acid molecule as represented by the nucleic acid sequence as shown in Table 1, or a variant polypeptide comprising an amino acid sequence which varies by the addition, deletion or substitution of at least one amino acid residue as represented by the amino acid sequences shown in Table 1, and at least one agent to be tested; and

ii) determining the activity of said agent with respect to activity of said polypeptide.

In a preferred method of the invention said polypeptide is expressed by a cell wherein said cell is transformed or transfected with said nucleic acid molecule. Preferably said nucleic acid molecule is part of a vector adapted for recombinant expression of said nucleic acid molecule. Preferably said vector is provided with a promoter which enables the expression of said nucleic acid molecule to be regulated.

In a preferred method of the invention said cell is derived from the colon, preferably said cell is an epithelial cell which lines said colon.

In a further preferred method of the invention said agent is an antibody, preferably a monoclonal antibody or modified antibody, or at least the effective binding part thereof.

Antibodies, also known as immunoglobulins, are protein molecules which usually have specificity for foreign molecules (antigens). Immunoglobulins (Ig) are a class of structurally related proteins consisting of two pairs of polypeptide chains, one pair of light (L) (low molecular weight) chain (κ or λ), and one pair of heavy (H) chains (γ, α, μ, δ and ε), all four linked together by disulphide bonds. Both H and L chains have regions that contribute to the binding of antigen and that are highly variable from one Ig molecule to another. In addition, H and L chains contain regions that are non-variable or constant.

The L chains consist of two domains. The carboxy-terminal domain is essentially identical among L chains of a given type and is referred to as the "constant" (C) region. The amino terminal domain varies from L chain to L chain and contributes to the binding site of the antibody. Because of its variability, it is referred to as the "variable" (V) region.

The H chains of Ig molecules are of several classes, α, μ, σ, α, and γ (of which there are several sub-classes). An assembled Ig molecule consisting of one or more units of two identical H and L chains, derives its name from the H chain that it possesses. Thus, there are five Ig isotypes: IgA, IgM, IgD, IgE and IgG (with four sub-classes based on the differences in the 'constant' regions of the H chains, i.e., IgG1, IgG2, IgG3 and IgG4). Further detail regarding antibody structure and their various functions can be found in, Using Antibodies: A laboratory manual, Cold Spring Harbour Laboratory Press.

In a preferred method of the invention said fragment is a Fab fragment.

In a further preferred method of the invention said antibody is selected from the group consisting of: $F(ab')_2$, Fab, Fv and Fd fragments; and antibodies comprising CDR3 regions.

Preferably said fragments are single chain antibody variable regions (scFV's) or domain antibodies. If a hybridoma exists for a specific monoclonal antibody it is well within the knowledge of the skilled person to isolate scFv's from mRNA extracted from said hybridoma via RT PCR. Alternatively, phage display screening can be undertaken to identify clones expressing scFv's. Domain antibodies are the smallest binding part of an antibody (approximately 13kDa). Examples of this technology is disclosed in US6, 248, 516, US6, 291, 158, US6,127, 197 and EP0368684 which are all incorporated by reference in their entirety.

A modified antibody, or variant antibody and reference antibody, may differ in amino acid sequence by one or more substitutions, additions, deletions, truncations which may be present in any combination. Among preferred variants are those that vary from a reference polypeptide by conservative amino acid substitutions. Such substitutions are those that substitute a given amino acid by another amino acid of like characteristics. The following non-limiting list of amino acids are considered conservative replacements (similar): a) alanine, serine, and threonine; b) glutamic acid and asparatic acid; c) asparagine and glutamine d) arginine and lysine; e) isoleucine, leucine, methionine and valine and f) phenylalanine, tyrosine and tryptophan. Most highly preferred are variants which show enhanced biological activity.

Preferably said antibody is a humanised or chimeric antibody.

A chimeric antibody is produced by recombinant methods to contain the variable region of an antibody with an invariant or constant region of a human antibody.

A humanised antibody is produced by recombinant methods to combine the complementarity determining regions (CDRs) of an antibody with both the constant (C) regions and the framework regions from the variable (V) regions of a human antibody.

Chimeric antibodies are recombinant antibodies in which all of the V-regions of a mouse or rat antibody are combined with human antibody C-regions. Humanised antibodies are recombinant hybrid antibodies which fuse the complimentarity determining regions from a rodent antibody V-region with the framework regions from the human antibody V-regions. The C-regions from the human antibody are also used. The complimentarity determining regions (CDRs) are the regions within the N-terminal domain of both the heavy and light chain of the antibody to where the majority of the variation of the V-region is restricted. These regions form loops at the surface of the antibody molecule. These loops provide the binding surface between the antibody and antigen.

Antibodies from non-human animals provoke an immune response to the foreign antibody and its removal from the circulation. Both chimeric and humanised antibodies have reduced antigenicity when injected to a human subject because there is a reduced amount of rodent (i.e. foreign) antibody within the recombinant hybrid antibody, while the human antibody regions do not elicit an immune response. This results in a weaker immune response and a decrease in the clearance of the antibody. This is clearly desirable when using therapeutic antibodies in the treatment of human diseases. Humanised antibodies are designed to have less "foreign" antibody regions and are therefore thought to be less immunogenic than chimeric antibodies.

In an alternative preferred method of the invention said agent is a polypeptide or a peptide. Preferably said polypeptide or peptide is modified.

In a preferred method of the invention said peptide is at least 6 amino acid residues in length. Preferaby the length of said peptide/polypeptide is selected from the group

consisting of: at least 7 amino acid residues; 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues in length. Alternatively the length of said peptide/polypeptide is at least 20 amino acid residues; 30; 40; 50; 60; 70; 80; 90; or 100 amino acid residues in length.

It will be apparent to one skilled in the art that modification to the amino acid sequence of peptide agents could enhance the binding and/or stability of the peptide with respect to its target sequence. In addition, modification of the peptide may also increase the *in vivo* stability of the peptide thereby reducing the effective amount of peptide necessary to inhibit the activity of a target polypeptide. This would advantageously reduce undesirable side effects which may result *in vivo*. Alternatively or preferably, said modification includes the use of modified amino acids in the production of recombinant or synthetic forms of peptides. It will be apparent to one skilled in the art that modified amino acids include, by way of example and not by way of limitation, 4-hydroxyproline, 5-hydroxylysine, N^6-acetyllysine, N^6-methyllysine, N^6,N^6-dimethyllysine, N^6,N^6,N^6-trimethyllysine, cyclohexyalanine, D-amino acids, ornithine. Other modifications include amino acids with a C_2, C_3 or C_4 alkyl R group optionally substituted by 1, 2 or 3 substituents selected from halo (e.g. F, Br, I), hydroxy or C_1-C_4 alkoxy. Modifications also include, by example and not by way of limitation, acetylation and amidation.

In a preferred embodiment of the invention said peptide sequence is acetylated. Preferably said acetylation is to the amino terminus of said peptide.

In a further preferred embodiment of the invention said peptide sequence is amidated. Preferably said amidation is to the carboxyl-terminus of said peptide.

It will also be apparent to one skilled in the art that peptides could be modified by cyclisation. Cyclisation is known in the art, (see Scott *et al* Chem Biol (2001), 8:801-815; Gellerman et al J. Peptide Res (2001), 57: 277-291; Dutta *et al* J. Peptide

Res (2000), 8: 398-412; Ngoka and Gross J Amer Soc Mass Spec (1999), 10:360-363.

In a further preferred method of the invention said agent is nucleic acid molecule. Preferably said nucleic acid molecule is an aptamer or a modified aptamer. In an alternative preferred method of the invention said nucleic acid is an inhibitory RNA (RNAi) molecule. Alternatively said nucleic acid molecule is an antisense nucleic acid molecule.

Nucleic acids have both linear sequence structure and a three dimensional structure which in part is determined by the linear sequence and also the environment in which these molecules are located. Conventional therapeutic molecules are small molecules, for example, peptides, polypeptides, or antibodies, which bind target molecules to produce an agonistic or antagonistic effect. It has become apparent that nucleic acid molecules also have potential with respect to providing agents with the requisite binding properties which may have therapeutic utility. These nucleic acid molecules are typically referred to as aptamers. Aptamers are small, usually stablised, nucleic acid molecules which comprise a binding domain for a target molecule. A screening method to identify aptamers is described in US 5,270,163, which is incorporated by reference. Aptamers are typically oligonucleotides which may be single stranded oligodeoxynucleotides, oligoribonucleotides, or modified oligodeoxynucleotide or oligoribonucleotides.

The term "modified" encompasses nucleotides with a covalently modified base and/or sugar. For example, modified nucleotides include nucleotides having sugars which are covalently attached to low molecular weight organic groups other than a hydroxyl group at the 3' position and other than a phosphate group at the 5' position. Thus modified nucleotides may also include 2' substituted sugars such as 2'-O-methyl-; 2-O-alkyl; 2-O-allyl; 2'-S-alkyl; 2'-S-allyl; 2'- fluoro-; 2'-halo or 2;azido-ribose, carbocyclic sugar analogues a-anomeric sugars; epimeric sugars such as arabinose, xyloses or lyxoses, pyranose sugars, furanose sugars, and sedoheptulose.

Modified nucleotides are known in the art and include by example and not by way of limitation; alkylated purines and/or pyrimidines; acylated purines and/or pyrimidines; or other heterocycles. These classes of pyrimidines and purines are known in the art and include, pseudoisocytosine; N4, N4-ethanocytosine; 8-hydroxy-N6-methyladenine; 4-acetylcytosine, 5-(carboxyhydroxylmethyl) uracil; 5-fluorouracil; 5-bromouracil; 5-carboxymethylaminomethyl-2-thiouracil; 5-carboxymethylaminomethyl uracil; dihydrouracil; inosine; N6-isopentyl-adenine; 1-methyladenine; 1-methylpseudouracil; 1-methylguanine; 2,2-dimethylguanine; 2-methyladenine; 2-methylguanine; 3-methylcytosine; 5-methylcytosine; N6-methyladenine; 7-methylguanine; 5- methylaminomethyl uracil; 5-methoxy amino methyl-2-thiouracil; β-D-mannosylqueosine; 5-methoxycarbonylmethyluracil; 5-methoxyuracil; 2 methylthio-N6-isopentenyladenine; uracil-5-oxyacetic acid methyl ester; psueouracil; 2-thiocytosine; 5-methyl-2 thiouracil, 2-thiouracil; 4-thiouracil; 5-methyluracil; N-uracil-5-oxyacetic acid methylester; uracil 5—oxyacetic acid; queosine; 2-thiocytosine; 5-propyluracil; 5-propylcytosine; 5-ethyluracil; 5-ethylcytosine; 5-butyluracil; 5-pentyluracil; 5-pentylcytosine; and 2,6,-diaminopurine; methylpsuedouracil; 1-methylguanine; 1-methylcytosine.

The aptamers of the invention are synthesized using conventional phosphodiester linked nucleotides and synthesized using standard solid or solution phase synthesis techniques which are known in the art. Linkages between nucleotides may use alternative linking molecules. For example, linking groups of the formula P(O)S, (thioate); P(S)S, (dithioate); P(O)NR'2; P(O)R'; P(O)OR6; CO; or CONR'2 wherein R is H (or a salt) or alkyl (1-12C) and R6 is alkyl (1-9C) is joined to adjacent nucleotides through –O- or –S-. The binding of aptamers to a target polypeptide is readily testable.

An alternative nucleic acid molecule is a so called RNAi molecule. A recent technique to specifically ablate gene function is through the introduction of double stranded RNA, also referred to as inhibitory RNA (RNAi), into a cell which results

in the destruction of mRNA complementary to the sequence included in the RNAi molecule. The RNAi molecule comprises two complementary strands of RNA (a sense strand and an antisense strand) annealed to each other to form a double stranded RNA molecule. The RNAi molecule is typically derived from exonic or coding sequence of the gene which is to be ablated. Recent studies suggest that RNAi molecules ranging from 100-1000bp derived from coding sequence are effective inhibitors of gene expression. Surprisingly, only a few molecules of RNAi are required to block gene expression which implies the mechanism is catalytic. The site of action appears to be nuclear as little if any RNAi is detectable in the cytoplasm of cells indicating that RNAi exerts its effect during mRNA synthesis or processing.

In a preferred method of the invention there is provided a cassette comprising a nucleic acid molecule, or part thereof, wherein said molecule is selected from the group consisting of:

i) a nucleic acid molecule represented by the nucleic acid sequence shown in Table 1 ;

ii) a nucleic acid molecule which hybridises to the sequence in (i) above and which encodes a polypeptide which initiates or promotes transformation of colon cells; or

iii) a nucleic acid molecule which is degenerate because of the genetic code to the sequences defined in (i) and (ii) above, wherein said cassette is adapted such that both sense and antisense nucleic acid molecules are transcribed from said cassette.

In a preferred method of the invention said cassette is provided with at least two promoters adapted to transcribe both sense and antisense strands of said nucleic acid molecule.

In a further preferred method of the invention said cassette comprises a nucleic acid molecule wherein said molecule comprises a first part linked to a second part wherein said first and second parts are complementary over at least part of their

sequence and further wherein transcription of said nucleic acid molecule produces an RNA molecule which forms a double stranded region by complementary base pairing of said first and second parts.

In a preferred embodiment of the invention said first and second parts are linked by at least one nucleotide base.

In a preferred embodiment of the invention said first and second parts are linked by 2, 3, 4, 5, 6, 7, 8, 9 or at least 10 nucleotide bases.

In a further preferred embodiment of the invention the length of the RNAi molecule is between 100bp-1000bp. More preferably still the length of RNAi is selected from 100bp; 200bp; 300bp; 400bp; 500bp; 600bp; 700bp; 800bp; 900bp; or 1000bp. More preferably still said RNAi is at least 1000bp.

In an alternative preferred method of the invention the RNAi molecule is between 15bp and 25bp, preferably said molecule is 21bp. Preferably said cassette is part of a vector.

According to a further aspect of the invention there is provided an antibody identified by the method according to the invention for use as a pharmaceutical.

According to a further aspect of the invention there is provided a polypeptide or peptide identified by the method according to the invention for use as a pharmaceutical.

According to a further aspect of the invention there is provided a nucleic acid molecule identified by the method according to the invention for use as a pharmaceutical.

In a preferred embodiment of the invention said nucleic acid molecule is an aptamer.

In an alternative preferred embodiment of the invention said nucleic acid molecule is an inhibitory RNA.

In a further alternative preferred embodiment of the invention said nucleic acid molecule is an antisense nucleic acid molecule.

In a preferred embodiment of the invention said pharmaceutical further comprises a a diluent, carrier or excipient.

When administered, the therapeutic compositions of the present invention are administered in pharmaceutically acceptable preparations. Such preparations may routinely contain pharmaceutically acceptable concentrations of salt, buffering agents, preservatives, compatible carriers, supplementary immune potentiating agents such as adjuvants and cytokines and optionally other therapeutic agents, such as chemotherapeutic agents.

The therapeutics of the invention can be administered by any conventional route, including injection or by gradual infusion over time. The administration may, for example, be oral, intravenous, intraperitoneal, intramuscular, intracavity, subcutaneous, or transdermal. When antibodies are used therapeutically, a preferred route of administration is by pulmonary aerosol. Techniques for preparing aerosol delivery systems containing antibodies are well known to those of skill in the art. Generally, such systems should utilize components which will not significantly impair the biological properties of the antibodies, such as the paratope binding capacity (see, for example, Sciarra and Cutie, "Aerosols," in Remington's Pharmaceutical Sciences, 18th edition, 1990, pp 1694-1712; incorporated by reference). Those of skill in the art can readily determine the various parameters and conditions for producing antibody aerosols without resort to undue experimentation. When using antisense preparations of the invention, slow intravenous administration is preferred.

The compositions of the invention are administered in effective amounts. An "effective amount" is that amount of a composition that alone, or together with further doses, produces the desired response. In the case of treating a particular disease, such as cancer, the desired response is inhibiting the progression of the disease. This may involve only slowing the progression of the disease temporarily, although more preferably, it involves halting the progression of the disease permanently. This can be monitored by routine methods or can be monitored according to diagnostic methods of the invention discussed herein.

Such amounts will depend, of course, on the particular condition being treated, the severity of the condition, the individual patient parameters including age, physical condition, size and weight, the duration of the treatment, the nature of concurrent therapy (if any), the specific route of administration and like factors within the knowledge and expertise of the health practitioner. These factors are well known to those of ordinary skill in the art and can be addressed with no more than routine experimentation. It is generally preferred that a maximum dose of the individual components or combinations thereof be used, that is, the highest safe dose according to sound medical judgment. It will be understood by those of ordinary skill in the art, however, that a patient may insist upon a lower dose or tolerable dose for medical reasons, psychological reasons or for virtually any other reasons.

The pharmaceutical compositions used in the foregoing methods preferably are sterile and contain an effective amount for producing the desired response in a unit of weight or volume suitable for administration to a patient. The response can, for example, be determined by measuring the physiological effects of the composition, such as regression of a tumour, decrease of disease symptoms, modulation of apoptosis, etc.

The doses of pharmaceutical agent administered to a subject can be chosen in accordance with different parameters, in particular in accordance with the mode of

administration used and the state of the subject. Other factors include the desired period of treatment. In the event that a response in a subject is insufficient at the initial doses applied, higher doses (or effectively higher doses by a different, more localized delivery route) may be employed to the extent that patient tolerance permits.

In general, doses of pharmaceutical are formulated and administered in doses between 1 ng and about 500mg, and between 10 ng and 100mg, according to any standard procedure in the art. Where nucleic acids are employed, doses of between 1 ng and 0.1mg generally will be formulated and administered according to standard procedures. Other protocols for the administration of compositions will be known to one of ordinary skill in the art, in which the dose amount, schedule of injections, sites of injections, mode of administration (e.g., intra-tumoral) and the like vary from the foregoing. Administration of pharmaceutical compositions to mammals other than humans, e.g. for testing purposes or veterinary therapeutic purposes, is carried out under substantially the same conditions as described above. A subject, as used herein, is a mammal, preferably a human, and including a non-human primate, cow, horse, pig, sheep, goat, dog, cat or rodent.

When administered, the pharmaceutical preparations of the invention are applied in pharmaceutically-acceptable amounts and in pharmaceutically-acceptable compositions. The term "pharmaceutically acceptable" means a non-toxic material that does not interfere with the effectiveness of the biological activity of the active ingredients. Such preparations may routinely contain salts, buffering agents, preservatives, compatible carriers, and optionally other therapeutic agents. When used in medicine, the salts should be pharmaceutically acceptable, but non-pharmaceutically acceptable salts may conveniently be used to prepare pharmaceutically-acceptable salts thereof and are not excluded from the scope of the invention. Such pharmacologically and pharmaceutically-acceptable salts include, but are not limited to, those prepared from the following acids: hydrochloric, hydrobromic, sulfuric, nitric, phosphoric, maleic, acetic, salicylic, citric, formic,

malonic, succinic, and the like. Also, pharmaceutically-acceptable salts can be prepared as alkaline metal or alkaline earth salts, such as sodium, potassium or calcium salts.

Pharmaceutcial compositions may be combined, if desired, with a pharmaceutically-acceptable carrier. The term "pharmaceutically-acceptable carrier" as used herein means one or more compatible solid or liquid fillers, diluents or encapsulating substances which are suitable for administration into a human. The term "carrier" denotes an organic or inorganic ingredient, natural or synthetic, with which the active ingredient is combined to facilitate the application. The components of the pharmaceutical compositions also are capable of being co-mingled with the molecules of the present invention, and with each other, in a manner such that there is no interaction which would substantially impair the desired pharmaceutical efficacy.

The pharmaceutical compositions may contain suitable buffering agents, including: acetic acid in a salt; citric acid in a salt; boric acid in a salt; and phosphoric acid in a salt.

The pharmaceutical compositions also may contain, optionally, suitable preservatives, such as: benzalkonium chloride; chlorobutanol; parabens and thimerosal.

The pharmaceutical compositions may conveniently be presented in unit dosage form and may be prepared by any of the methods well-known in the art of pharmacy. All methods include the step of bringing the active agent into association with a carrier which constitutes one or more accessory ingredients. In general, the compositions are prepared by uniformly and intimately bringing the active compound into association with a liquid carrier, a finely divided solid carrier, or both, and then, if necessary, shaping the product.

Compositions suitable for oral administration may be presented as discrete units, such as capsules, tablets, lozenges, each containing a predetermined amount of the active compound. Other compositions include suspensions in aqueous liquids or non-aqueous liquids such as a syrup, elixir or an emulsion.

Compositions suitable for parenteral administration conveniently comprise a sterile aqueous or non-aqueous preparation of pharmaceutical agents, which is preferably isotonic with the blood of the recipient. This preparation may be formulated according to known methods using suitable dispersing or wetting agents and suspending agents. The sterile injectable preparation also may be a sterile injectable solution or suspension in a non-toxic parenterally-acceptable diluent or solvent, for example, as a solution in 1,3-butane diol. Among the acceptable vehicles and solvents that may be employed are water, Ringer's solution, and isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed as a solvent or suspending medium. For this purpose any bland fixed oil may be employed including synthetic mono-or di-glycerides. In addition, fatty acids such as oleic acid may be used in the preparation of injectables. Carrier formulation suitable for oral, subcutaneous, intravenous, intramuscular, etc. administrations can be found in Remington's Pharmaceutical Sciences, Mack Publishing Co., Easton, PA.

An embodiment of the invention will now be described by example only and with reference to the following Figures and Tables;

Figure 1 illustrates a concentration-response of cells growing in butyrate as sole carbon source. This is the summary of four independent repeat experiments. Legend shows butyrate concentrations in mM;

Figure 2 illustrates the purity and quality of RNA preparation. The 28S and 18S sample bands are tight and clearly resolved for RNA prepared from butyrate- and glucose-grown cells. Little or no DNA or salt contamination appears in the samples;

Table1 illustrates nucleic acid sequences identified by the screening method according to the invention; and

Table 2 illustrates a summary of expression data of nucleic acid sequences identified in Table 1.

Materials and Methods

We have compared the expression profiles of colon cells growing in either glucose or butyrate as a carbon source. HT 29 colon carcinoma cells were cultured in DMEM medium (Gibco) in the presence of 10% foetal calf serum, penicillin and streptomycin. Cells were either cultured in glucose alone as the sole carbon source, or in butyrate as the sole extraneous provided carbon source. Empirical analysis of HT29 cells grown in multiple butyrate concentrations revealed that 2mM butyrate was optimal for cell culture in the absence of glucose. Cells were cultured in either medium for multiple passages (typically 4). RNA was extracted from cells grown in each condition and used to probe an Affymetrix human 12k array. The expression profile of cells cultured in each condition was compared and genes altered in expression by more than 2 fold are listed in Table 2.

Materials used during this study

ITEM	ITEM - SPECIFICS	SUPPLIER
Glucose medium (1)	Dulbecco's Modified Eagle Medium 25 mM HEPES 1 x 0.1 micron filtered with sodium pyruvate, with 1000	GIBCO

	mg/l glucose with pyridoxine + FCS + p/s (500 ml)	
Butyrate medium (2) 0.2 mM NaB medium	Dulbecco's Modified Eagle Medium 1 x 0.1 micron filtered with L-glutamine without glucose, without sodium pyruvate + NaB (1M) 110 µl + FCS + p/s (555.1 ml)	GIBCO
Butyrate medium (3) 2 mM NaB medium	Dulbecco's Modified Eagle Medium 1 x 0.1 micron filtered with L-glutamine without glucose, without sodium pyruvate + NaB (1M) 1100 µl + FCS + p/s (556.1 ml)	GIBCO
Medium without glucose and without butyrate (4)	Dulbecco's Modified Eagle Medium 1 x 0.1 micron filtered with L-glutamine without glucose, without sodium pyruvate + FCS + p/s (550 ml)	GIBCO
NaB stock	Sodium Butyrate powder dissolved in sterile water 250 mg in 2.27 ml water	Sigma

	(1M) 0.2 µm filter sterilised	
Sterile syringes	5 ml	Becton Dickinson UK, Ltd
Sterilising filters	0.2 µm Acrodisc	Gelman Sciences, Ltd
Item	**Item specifics**	**Supplier**
FCS	Foetal Calf Serum 50 ml per 500 ml DMEM	Harlan Sera Lab
P/S	Penicillin – Streptomycin solution 100ml bottle (100 X) – 5 ml per 500 ml DMEM	Sigma
TE for splitting cells	Trypsin Enzyme – 100 ml bottle - 3 ml per T75 and 1 ml per 6 well plate well	Sigma
FCS tubes	50 ml Centrifuge tubes	Corning Inc
P/S + TE tubes	30 ml Universal containers	Bibby Sterilin Ltd
Tissue Culture Plates	6 well sterile with lid single packed	Greiner bio-one
Tissue Culture Flasks	T 75	Nunclon
Stripette ® 5ml, 10ml,	Serological Pipette,	Corning Inc / Costar

25 ml	individually wrapped	
Pipette	Powerpette plus	Jencons
Cell Counting Slide	Haemocytometer, improved Neubauer	Neubauer
Ethanol for tissue culture	70 % EtOH	Sigma
Virkon for cell culture	1 % Virkon	Day Impex, Ltd
Microscope for cell work	Light 6 – 10X	CK Olympus, Tokyo
Paper towels	Blue	Jamont (UK), Ltd
Latex-free examination gloves	Large	Shermond Surgical Supply, Ltd
Item	**Item specifics**	**Supplier**
RNA extraction reagent	TRIzol ® Reagent	Invitrogen – Life technologies
RNA extraction reagent	Chloroform	Sigma
RNA extraction reagent	Isopropyl alcohol	Sigma

RNA extraction reagent	75% EtOH in DEPC-treated water	Sigma
RNA extraction reagent	Rnase-free water	Sigma
RNA clean up kit	Rneasy Midi Kit (10 RNeasy midi spin columns)	Qiagen
β- Mercaptoethanol	14.3 M stock solution	Sigma
Ethanol for Qiagen	96-100% EtOH	Sigma
Agarose	1g in 100 ml TB-EDTA-Buffer	Helena Biosciences, UK
TB-EDTA- Buffer	Tris-Borate-EDTA buffer 100ml	Sigma
Eppendorf tubes	1.5 ml	Sarstedt Laboratory supplies, Ltd
Loading buffer	6 X	Promega

The Human Colon Carcinoma Cell Line - HT29

The HT29 cell line is established from a colon adenocarcinoma which was removed from a 44 year old Caucasian woman. The cell line is epithelial in origin and hypertriploid. It has been shown to be tumourigenic in nude mice and synthesizes Carcino embryonic antigen - CEA (Egan & Todd, 1972) and the Transforming

growth factors - TGF-α and TGF-β (Anzano *et al.* 1989) when maintained *in vitro*. The HT29 cell line constitutively over-produces mutant p53 protein as a consequence of a point mutation at codon 273, resulting in an Arginine to Histidine amino acid substitution (Hsu *et al.* 1994).

The Culture of HT29 Colorectal adenocarcinoma cells

Cells were cultured in T75 tissue culture flasks (Nunclon) in 5% CO_2 at 37°C. Cells were passaged when confluent by washing twice in PBS and incubating in pre-warmed trypsin : EDTA (1:1) at 37°C until cells detached. The cells were then re-suspended in the appropriate growth medium, either glucose DMEM or butyrate DMEM before being seeded into new T75 tissue culture flasks or 6-well plates.

Optimisation of HT29 cell growth in butyrate as sole extraneous carbon source

HT29 cells were seeded out into 19 wells (in 6 well plates) at a cell density of 0.5 x 10^6 cells per well (i.e. 500 000 cells per well) deduced with the aid of a Haemocytometer (Improved Neubauer). These cells were taken from T75 - 0.2 mM butyrate (NaB) DMEM flasks and allowed to adhere to the 6-well plates over 72 hrs also in 0.2 mM NaB DMEM with FCS and Penicillin / Streptomycin antibiotics. After the cells had adhered to the surface of the 6 well plates the 0.2 mM NaB DMEM was removed and each well was washed twice with PBS in order to remove all traces of the 0.2 mM DMEM, then different concentrations of NaB DMEM with FCS and with Penicillin / Streptomycin antibiotics were added to the appropriate wells in triplicate. Cell counts were taken at various time points. Specific media was changed daily in order to maintain the appropriate / desired NaB concentrations per well. All solutions / reagents used were pre-warmed in a water bath prior to use so as to avoid any cold shock to the cells.

RNA extraction using TRIzol® Reagent

Total RNA was extracted from HT29 cells grown to confluence in T75 flasks using TRIzol Reagent as per manufacturer's recommendations. Cells were grown for several passages either in butyrate-containing medium, or in glucose-containing medium prior to extraction of RNA

Cells were homogenised using 1 ml TRIzol Reagent per 10 cm^2 area of culture surface. The homogenised samples were incubated for 5 minutes at at ambient temperature to permit the complete dissociation of nucleoprotein complexes. 200μl of chloroform was added to each sample. Tubes were shaken vigorously by hand for 15 seconds and incubated at ambient temperature for 3 minutes. Samples were centrifuged at 12000g for 15 minutes at 4oC. RNA in the aqueous phase was separated and precipitated using isopropyl alcohol. RNA was rinsed, air dried and redissolved in RNase-free water.

RNA was further purified using Qiagen RNeasy columns. The columns were used exactly as per manufacturer's recommendations. RNA was eluted into RNase-free water.

RNA purified in this way was analysed by agarose gel to establish purity and quality. The gel is shown in figure 2.

Microarray analysis

Microarray analysis was undertaken as a commercial service by the University of Newcastle-upon-Tyne. In this study, the 2 RNA samples (1x butyrate + 1x glucose) from the 2 experimental conditions (butyrate + glucose) were sent to the Institute for Human Genetics at the University of Newcastle-upon-Tyne for microarray analysis. This was performed on a 12 k Affymetrix *Homo sapiens* gene chip. Genes altered in expression by more than 2 fold on the microarray are listed in table 1.

Table 1

Human mitochondrial ADP/ADT translocator mRNA, complete cds.

```
ccccctagcg tcgcgcaggg tcggggactg cgcgcggtgc caggccgggc gtgggcgaga      60
gcacgaacgg gctgctgcgg gctgagagcg tcgagctgtc accatgggtg atcacgcttg     120
gagcttccta aaggacttcc tggccggggc ggtcgccgct gccgtctcca agaccgcggt     180
cgcccccatc gagagggtca aactgctgct gcaggtccag catgccagca aacagatcag     240
tgctgagaag cagtacaaag ggatcattga ttgtgtggtg agaatcccta aggagcaggg     300
cttcctctcc ttctggaggg gtaacctggc caacgtgatc cgttacttcc ccacccaagc     360
tctcaacttc gccttcaagg acaagtacaa gcagctcttc ttagggggtg tggatcggca     420
taagcagttc tggcgctact ttgctggtaa cctggcgtcc ggtggggccg ctggggccac     480
ctccctttgc tttgtctacc cgctggactt tgctaggacc aggttggctg ctgatgtggg     540
caggcgcgcc cagcgtgagt tccatggtct gggcgactgt atcatcaaga tcttcaagtc     600
tgatggcctg agggggctct accagggttt caacgtctct gtccaaggca tcattatcta     660
tagagctgcc tacttcggag tctatgatac tgccaagggg atgctgcctg accccaagaa     720
cgtgcacatt tttgtgagct ggatgattgc ccagagtgtg acggcagtcg cagggctgct     780
gtcctacccc tttgacactg ttcgtcgtag aatgatgatg cagtccggcc ggaaaggggc     840
cgatattatg tacacgggga cagttgactg ctggaggaag attgcaaaag acgaaggagc     900
caaggccttc ttcaaaggtg cctggtccaa tgtgctgaga ggcatgggcg gtgcttttgt     960
attggtgttg tatgatgaga tcaaaaaata tgtctaatgt aattaaaaca caagttcaca    1020
gatttacatg aacttgatct acaagttcac agatccattg tgtggtttaa tagactattc    1080
ctaggggaag taaaaagatc tgggataaaa ccagactgaa aggaatacct cagaagagat    1140
gcttcattga gtgttcatta aaccacacat gtattttgta tttattttac atttaaattc    1200
ccacagcaaa tagaaataat ttatcatact tgtacaatta actgaagaat tgataataac    1260
tgaatgtgaa acatcaataa agaccactta atgcacaaaa aaaaaaaaaa aaaaaaaaaa    1320
```

Homo sapiens mRNA for VNN1 protein

```
cattggactt cagcatgact actcagttgc cagcttacgt ggcaattttg cttttctatg      60
tctcaagagc cagctgccag gacactttca ttgcagctgt ttatgagcat gcagcgatat     120
tgcccaatgc caccctaaca ccagtgtctc gtgaggaggc tttggcatta atgaatcgga     180
atctggacat tttggaagga gcgatcacat cagcagcaga tcagggtgcg catattattg     240
tgactccaga agatgctatt tatggctgga acttcaacag ggactctctc tacccatatt     300
tggaggacat cccagaccct gaagtaaact ggatcccctg taataatcgt aacagatttg     360
gccagacccc agtacaagaa agactcagct gcctggccaa gaacaactct atctatgttg     420
tggcaaatat tggggacaag aagccatgcg ataccagtga tcctcagtgt ccccctgatg     480
gccgttacca atacaacact gatgtggtat ttgattctca aggaaaactg gtggcacgct     540
accataagca aaacctttc atgggtgaaa atcaattcaa tgtacccaag gagcctgaga     600
ttgtgacttt caataccacc tttggaagtt ttggcatttt cacatgcttt gatatactct     660
tccatgatcc tgctgttacc ttggtgaaag atttccacgt ggacaccata gtattcccaa     720
cagcttggat gaatgttttg ccacatttgt cagctgttga attccactca gcttgggcta     780
tgggcatgag ggtcaatttc cttgcatcca acatacatta cccctcaaag aaaatgacag     840
gaagtggcat ctatgcaccc aattcttcaa gagcatttca ttatgatatg aagacagaag     900
agggaaaact cctcctctcg caactggatt cccacccatc ccattctgca gtggtgaact     960
ggacttccta tgccagcagt atagaagcgc tctcatcagg aaacaaggaa tttaaaggca    1020
ctgtcttttt cgatgaattc acttttgtga agctcacagg agttgcagga aattatacag    1080
tttgtcagaa agatctctgc tgtcatttaa gctacaaaat gtctgagaac ataccaaatg    1140
aagtgtacgc tctaggggca tttgacggac tgcacactgt ggaagggcgc tattatctac    1200
agatttgtac cctgttgaaa tgtaaaacga ctaatttaaa cacttgcggt gactcagctg    1260
aaacagcttc taccaggttt gaaatgttct ccctcagtgg cactttcgga acccagtatg    1320
tctttcctga ggtgttgctg agtgaaaatc agcttgcacc tggagaattt caggtgtcaa    1380
ctgacggacg cttgtttagt ctgaagccaa catccggacc tgtcttaaca gtaactctgt    1440
ttgggaggtt gtatgagaag gactgggcat caaatgcttc atcaggcctc acagcacaag    1500
caagaataat aatgctaata gttatagcac ctattgtatg ctcattaagt tggtagaata    1560
ttgacttttt ctcttttta tttgggataa tttaaaaaat gatggatgag aaaagaaaga    1620
ttggtccggg ttaatattat cctctagtat aagtgaatta ctagtttctc tttatttaga    1680
caaacacaca cacaccagat aatataaact taataaatta tctgttaatg tagattttat    1740
ttaaaaaact atatttgaac attggtcttt cttggacgtg agctaattat atcaaataag    1800
tatcacaaat cttttacgca gaagaaataa aaactacggg tagaaaacat aagaactatc    1860
ataaaattta cttacaagga ggctgctctt gttaccactt ttattatatt acgtatcact    1920
tattcagctc tgctgaaaat ttccaatgac tttgtttgtt tgctctttta gtttttacc     1980
taaacaatac attttgattc tcttgtgggt tgataatgtc tccccaaaat ttacatgttg    2040
aagcacctca gaatgtgact gtatttggag acagggtctt taaagaggta aaataaggtc    2100
attaggatag accctaattc aatatgactg atgatcataa aagaagaggc gagtagggca    2160
caacaggcac aaagggagac cataaggaga cacagaggaa ggacaactct ttacaagcta    2220
agaagagagg gcctcagaag aaaccaaccc tgccaacacc ttgatcttgg acttccagcc    2280
tccaaaacta tgagaaataa atttctattg tttaagtcac ccagtccatg gtactttgtt    2340
aggcagccct ggcaaatgaa tcaaagaccc attcctgttc ctctccccac cactactgtt    2400
ttctactgta atctgaagct tcaacaaaag gcttacctgg taagaatatt cagctggtct    2460
gggtcctcaa gactccaata gacactctta aagaaggatt gctgatggat tgatagtgaa    2520
accattagat cattgaattc ctctggaatt agaaaaccag agagtcccat tttaagaaat    2580
tagatattta atatagcatt gtgtgttcta ttttagtaac agcagaatct cttgacatta    2640
cacaactcag tgaaacaaca tcatttaagc caaaatatct cccaactgac tgatagactc    2700
tgagcactaa tatcatagtg ctgtgatgat ggacaattac atagtaccga taacagccat    2760
gcactgtgca aagcatgccc ttctgcacag gagagcaagg cacttgcagt agtgatctat    2820
gccagcaaaa catcattttg agacaaacat ttttgtggca gatgtttttc ctaaaaagta    2880
ctatatcatc caagaaatat ttgagtaaaa tcccttgttc ttttgggtga cattaactga    2940
catttgcttt ttttcaagac ctaatagaaa ataagaaagc ccataatgta tttagaaaca    3000
ggaatcctca gagcaattct ctgtattctc atataatttc aatgtaaaac agaaaacata    3060
ttgatgtgtt ggtgataggc ttgaattatt aaaaacttca aaaacaaaa                3109
```

Homo sapiens transmembrane protein 5, mRNA

```
ggctgggcct gcctcggacg ccgccggtgt cgcggattct ctttccgccc gctccatggc      60
ggtggatgcc tgactggaag cccgagtggg atgcggctga cgcggaagcg gctctgctcg     120
tttcttatcg ccctgtactg cctattctcc ctctacgctg cctaccacgt cttcttcggg     180
cgccgccgcc aggcgccggc cgggtccccg cggggcctca ggaagggggc ggcccccgcg     240
cgggagagac gcggccgaga acagtccact ttggaaagtg aagaatggaa tccttgggaa     300
ggagatgaaa aaaatgagca acaacacaga tttaaaacta gccttcaaat attagataaa     360
tccacgaaag gaaaaacaga tctcagtgta caaatctggg gcaaagctgc cattggcttg     420
tatctctggg agcatatttt tgaaggctta cttgatccca gcgatgtgac tgctcaatgg     480
agagaaggaa agtcaatcgt aggaagaaca cagtacagct tcatcactgg tccagctgta     540
ataccagggt acttctccgt tgatgtgaat aatgtggtac tcattttaaa tggaagagaa     600
aaagcaaaga tcttttatgc cacccagtgg ttactttatg cacaaaattt agtgcaaatt     660
caaaaactcc agcatcttgc tgttgttttg ctcggaaatg aacattgtga taatgagtgg     720
ataaacccat tcctcaaaag aaatggaggc ttcgtggagc tgcttttcat aatatatgac     780
agcccctgga ttaatgacgt ggatgttttt cagtggcctt taggagtagc aacatacagg     840
aattttcctg tggtggaggc aagttggtca atgctgcatg atgagaggcc atatttatgt     900
aatttcttag gaacgattta tgaaaattca tccagacagg cactaatgaa cattttgaaa     960
aaagatggga acgataagct ttgttgggtt tcagcaagag aacactggca gcctcaggaa    1020
acaaatgaaa gtcttaagaa ttaccaagat gccttgcttc agagtgatct cacattgtgc    1080
ccggtcggag taaacacaga atgctatcga atctatgagg cttgctccta tggctccatt    1140
cctgtggtgg aagacgtgat gacagctggc aactgtggga atacatctgt gcaccacggt    1200
gctcctctgc agttactcaa gtccatgggt gctcccttta tctttatcaa gaactggaag    1260
gaactccctg ctgttttaga aaaagagaaa actataattt tacaagaaaa aattgaaaga    1320
agaaaaatgt tacttcagtg gtatcagcac ttcaagacag agcttaaaat gaaatttact    1380
aatattttag aaagctcatt tttaatgaat aataaaagtt aattatcttt ttgagctaaa    1440
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaa
```

Homo sapiens CD3e-associated protein (CAST) mRNA, complete cds.

cccaggatgg aggagcccca ggccggcggt gaggatgctg ctcggttctc ttgtcccccc 60
aactttaccg cgaagccccc agcctcagag tcccctcgtt tctccttgga ggcgctgacg 120
ggtccagata cggagctgtg gcttattcag gcccctgcag actttgcccc agaatgcttc 180
aatgggcggc atgtgcctct ctctggctcc cagatcgtca agggcaaatt ggcaggcaag 240
cggcaccgct atcgagtcct cagcagctgt ccccaagctg gagaagcgac cctgctggcc 300
ccctcaacgg aggcaggagg tggactcacc tgtgcctcag ccccccaggg caccctaagg 360
atccttgagg gtccccagca atccctgtca gggagccctc tgcagcccat cccagcaagt 420
ccccaccac agatccctcc tggcctgagg cctcggttct gtgcctttgg gggcaaccca 480
ccagtcacag ggcctaggtc agccttggcc cccaacctgc tcacctcagg gaagaagaaa 540
aaggagatgc aggtgacaga ggccccagtc actcaggagg cagtgaatgg gcacggggcc 600
ctggaggtgg acatggcttt ggggtcgcca gaaatggatg tgcggaagaa gaagaagaaa 660
aaaaatcagc agctgaaaga accagaggca gcagggcctg tggggacaga gcccacagtg 720
gagacactgg agcctctggg agtgctgttc ccgtccacca ccaagaagag gaagaagccc 780
aaagggaaag aaaccttcga gccagaagac aagacagtga agcaggaaca gattaacact 840
gagcctctag aagacacagt cctgtccccg accaaaaaga gaaagaggca aaaggggacg 900
gaagggatgg agccagagga gggggtgaca gttgagtctc agccacaggt gaaggtggag 960
ccactggagg aagccatccc tctgcccccc acgaagaaga ggaaaaaaga aaagggacag 1020
atggcaatga tggagccagg gacggaggcg atggagccag tggagccgga gatgaagcct 1080
ctggagtccc caggggggac catggcgcct caacagccag aaggagcgaa gcctcaggcc 1140
caggcagctc tggcagctcc caaaaagaag acgaagaaag aaaaacagca agatgccaca 1200
gtggagccag agacagaggt ggtggggcct gagctgccgg atgaccttga gcctcaggca 1260
gctcccacat ccaccaagaa gaagaagaag aagaaagaga gaggtcacac agtgactgag 1320
ccaattcagc cactagagcc tgaactgcca ggggagggac agcctgaagc cagggcaact 1380
ccgggatcca ccaagaagag gaagaagcag agtcaggaaa gccggatgcc agagacagtg 1440
ccccaagagg agatgccagg gccgccactg aattcagagt ctggggagga ggctcccaca 1500
ggccgggaca agaagcggaa gcagcagcag cagcagcctg tgtagtctgc ccccgggaaa 1560
ctgaggaact aaagaaagct gaaggtgccc acctgggcca ccagaaggtg acacccccag 1620
aatccctccc cagagactgc accagcgcag ccagcaggag cctggcctgg gaggacgatt 1680
tattattaca ctgggggttt ccttggcagc tggggtcatc agggtacttt caagaagggc 1740
tcgtgcagga catcaaacag cctccgggcc tggatgggag ggagaaaaaa atgaggaacc 1800
gtcattaaa ggagctgttt cctgggtaaa aaaaaaaaaa a

Homo sapiens Apo-2 ligand mRNA, complete cds.

tttcctcact gactataaaa gaatagagaa ggaagggctt cagtgaccgg ctgcctggct 60
gacttacagc agtcagactc tgacaggatc atggctatga tggaggtcca ggggggaccc 120
agcctgggac agacctgcgt gctgatcgtg atcttcacag tgctcctgca gtctctctgt 180
gtggctgtaa cttacgtgta ctttaccaac gagctgaagc agatgcagga caagtactcc 240
aaaagtggca ttgcttgttt cttaaaagaa gatgacagtt attgggaccc caatgacgaa 300
gagagtatga acagcccctg ctggcaagtc aagtggcaac tccgtcagct cgttagaaag 360
atgattttga gaacctctga ggaaaccatt tctacagttc aagaaaagca acaaaatatt 420
tctcccctag tgagagaaag aggtcctcag agagtagcag ctcacataac tgggaccaga 480
ggaagaagca acacattgtc ttctccaaac tccaagaatg aaaaggctct gggccgcaaa 540
ataaactcct gggaatcatc aaggagtggg cattcattcc tgagcaactt gcacttgagg 600
aatggtgaac tggtcatcca tgaaaaaggg ttttactaca tctattccca aacatacttt 660
cgatttcagg aggaaataaa agaaaacaca aagaacgaca aacaaatggt ccaatatatt 720
tacaaataca caagttatcc tgaccctata ttgttgatga aaagtgctag aaatagttgt 780
tggtctaaag atgcagaata tggactctat tccatctatc aaggggaat atttgagctt 840
aaggaaaatg acagaatttt tgtttctgta acaaatgagc acttgataga catggaccat 900
gaagccagtt ttttcggggc ctttttagtt ggctaactga cctggaaaga aaaagcaata 960
acctcaaagt gactattcag ttttcaggat gatacactat gaagatgttt caaaaaatct 1020
gaccaaaaca aacaaacaga aa

Homo sapiens mRNA for annexin A13 (ANXA13 gene), isoform b

```
gtaaactttg cctgtaggag gactgatctc ttaatgaaat acagaaaaac catctcagaa      60
aaaggaaaat gggcaatcgt catagccagt cgtacaccct ctcagaaggc agtcaacagt     120
tgcctaaagg ggactcccaa ccctcgacag tcgtgcagcc tctcagccac ccatcacgga     180
atggagagcc agaggcccca cagcctgcta aagcgagcag tcctcagggt tttgatgtgg     240
atcgagatgc caaaaagctg aacaaagcct gcaaaggaat ggggaccaat gaagcagcca     300
tcattgaaat cttatcgggc aggacatcag atgagaggca acaaatcaag caaaagtaca     360
aggcaacgta cggcaaggag ctggaggaag tactcaagag tgagctgagt ggaaacttcg     420
agaagacagc gttggccctt ctggaccgtc ccagcgagta cgccgcccgg cagctgcaga     480
aggctatgaa gggtctgggc acagatgagt ccgtcctcat tgaggtcctg tgcacgagga     540
ccaataagga aatcatcgcc attaaagagg cctaccaaag gctatttgat aggagcctcg     600
aatcagatgt caaaggtgat acaagtggaa acctaaaaaa aatcctggtg tctctgctgc     660
aggctaatcg caatgaagga gatgacgtgg acaaagatct agctggtcag gatgccaaag     720
atctgtatga tgcaggggaa ggccgctggg gcactgatga gcttgcgttc aatgaagtcc     780
tggccaagag gagctacaag cagttacgag ccacctttca agcctatcaa attctcattg     840
gcaaagacat agaagaagcc attgaagaag aaacatcagg cgacttgcag aaggcctatt     900
taactctcgt gagatgtgcc caggattgtg aggactattt tgctgaacgt ctgtacaagt     960
cgatgaaggg tgcggggacc gatgaggaga cgttgattcg catagtcgtg accagggccg    1020
aggtggacct tcaggggatc aaagcaaagt tccaagagaa gtatcagaag tctctctctg    1080
acatggttcg ctcagatacc tccggggact tccggaaact gctagtagcc ctcttgcact    1140
gagccaagcc agggcaatag gaacacaggg tggaabcacc tttgtcaaga gcacattcca    1200
aatcaaactt gcaaatgaga ctcccgcacg aaaaccctta agagtcccgg attactttct    1260
tggcagctta agtggcgcag ccaggccaag ctgtgtaagt taagggcagt aacgttaaga    1320
tgcgtgggca gggcaccttg aactctggct tagcaagcat ctaggctgcc tcttcacttt    1380
cttttagcat ggtaactgga tgttttctaa acactaatga aatcagcagt tgatgaaaaa    1440
actatgcatt tgtaatggca catttagaag gatatgcatc acacaagtaa ggtacaggaa    1500
agacaaaatt aaacaattta ttaattttcc ttctgtgtgt tcaatttgaa agcctcattg    1560
      ttaattaaag ttgtggatta tgcctcta
```

Homo sapiens serine protease inhibitor, Kazal type 1, mRNA (cDNA clone

cgcagaactt cagccatgaa ggtaacaggc atctttcttc tcagtgcctt ggccctgttg 60
agtctatctg gtaacactgg agctgactcc ctgggaagag aggccaaatg ttacaatgaa 120
cttaatggat gcaccaagat atatgaccct gtctgtggga ctgatggaaa tacttatccc 180
aatgaatgcg tgttatgttt tgaaaatcgg aaacgccaga cttctatcct cattcaaaaa 240
tctgggcctt gctgagaacc aaggttttga aatcccatca ggtcaccgcg aggcctgact 300
ggccttattg ttgaataaat gtatctgaat atcaaaaaaa aaaaaaaaaa aaaaaaaaaa 360
aa

Homo sapiens B cell linker protein BLNK mRNA, alternatively spliced

ccttcgtggc cgcagcctgc actctcagaa atcagacttg agtggccgga accccttgaga 60
ccagaggctt accatgctgc tccctaggag ggccaggaac tgctgacgtg accactggac 120
agttattcgt gtctcttaca attaccaaac agaatggaca agcttaataa aataaccgtc 180
cccgccagtc agaagttgag gcagcttcaa aagatggtcc atgatattaa aaacaatgaa 240
ggtggaataa tgaataaaat caaaaagcta aaagtcaaag cacctccaag tgttcctcga 300
agggactacg cttcagagag ccccgctgac gaagaggagc agtggtccga tgactttgac 360
agcgactatg aaaatccaga tgagcactcg gactcagaga tgtacgtgat gcccgccgag 420
gagaacgctg atgacagcta cgagccgcct ccagtagagc aggaaaccag gccggttcac 480
ccagccctgc ccttcgccag aggcgagtat atagacaatc gatcaagcca gaggcattcc 540
ccacccttca gcaagacact tcccagtaag cccagctggc cttcagagaa agcaaggctc 600
acctccaccc tgccggccct gactgctttg cagaaacctc aagtcccacc caaacccaaa 660
ggcctccttg aggatgaggc tgattatgtg gtccccgtgg aagataatga tgaaaactat 720
attcatccca cagaaagcag ttcacctcca cctgaaaaag ctcccatggt gaatagatca 780
accaagccaa attcctcaac gcccgcctct cctccaggaa cagcttcagg tcgaaacagt 840
ggggcctggg aaaccaagtc acctccacca gctgcaccat ccccgttgcc acgggccggg 900
aaaaaaccaa cgacaccact gaagacaact ccagttgcct ctcaacagaa tgcttcaagt 960
gtttgtgaag aaaaacctat acctgctgaa cgccaccgag ggtcaagtca cagacaagaa 1020
gctgtgcagt caccagtgtt tcctcctgcc cagaaacaaa tccaccaaaa acccatacct 1080
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cttattcgga aaagctctgg ccatgattcc aaacaaccat atacactagt tgtattcttt 1320
aataagcgag tatataatat tcctgtgcga tttattgaag caacaaaaca atatgccttg 1380
ggcagaaaga aaaatggtga agagtacttt ggaagtgttg ctgaaatcat caggaatcat 1440
caacatagtc ctttggttct tattgacagt cagaataaca caaaagattc caccagactg 1500
aagtatgcag ttaaagtttc ataaaggggg aaaaaaaaga tcaataccat tgcttcagac 1560
actttcccaa agtttctcct tttgagaaaa agtcccaaaa cttcatattt tggattatga 1620
atcatccagt aataaaatgg aagatggagt cagctattga agtggtcatc catttctttt 1680
taagaagctc atgtggactt gttctattgc ctgacctgat gaactgttaa tatctggtga 1740
ggttgagtta tcatgctact aatattttcc aaataaatat ttttatttt aaaaaaaaaa 1800
aaaaaa

Homo sapiens cDNA FLJ12768 fis, clone NT2RP2001576, weakly similar to HYPOTHETICAL 62.2 KD PROTEIN C4G8.12C IN CHROMOSOME I

agtctccgcg ctgctgaggc gcgcccggcc gctcccacgg cctcccctcc gccctgcggt 60
cccgccgcct ccggggcctc ctgggaccct ggccctcgcc gggcaggacg ccgccagcgc 120
tgaaggcgca gcccggaggc cgcgcggatg cagatctgtg gatccagcgt agcatctgta 180
gcagctggga catcattcca ggttttgggc ccggtgtgtt ggcaacaact ggatctgaag 240
atggcagtca gggtgctttg gggtggtctc agcctgctcc gagtgctgtg gtgtctcctt 300
ccgcagacgg gctatgtgca cccagatgag ttcttccagt cccctgaggt gatggcagag 360
gacatcctgg gcgttcaggc cgcgcggccc tgggagtttt accccagcag ctcctgccgc 420
tcggtgctct tccccctgct gatctctggt tccaccttct ggctgctcag gctctgggag 480
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ggggcggatc gctggaacgc cctggccctg ctgtctggtt cctacgtcac cctggtcttc 660
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caggccctgc aggctgcgtg gcaacagctg caagtcggcc tccaggcctc tgcacaaatg 1200
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gccatagaag atgccgcccc accttctact tgggtagctg ggctgggacg ctgggacagg 1980
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gtgagacgaa gtatagagaa caggtggccc agatccaggg gacccaactt ctggcccctt 2400
ggtctgtcac ctcctcgctg tgtgatcttg agaaagctcc ttccactcac ccaccccact 2460
tcccagtctg ttgggatcag aggaactttg aggtgtctgc cggctaacat tgtgtcattc 2520
ctggagtcca cagtacacgt cccctgcctc aacaggcaca gctctcacaa agctcttcaa 2580
gcatggaagt gggagttgtg ttgtacttca tggcactctg atgcctgctg tctcagtgtt 2640
tggttattat gcaaacaagt aatgtttgaa atatataata gcactgg

Homo sapiens glycine amidinotransferase (L-arginine:glycine amidinotransferase), mRNA (cDNA clone MGC:1744 IMAGE:3010128), complete

cgggaaggct tggaccgacg cggcccagag gccaggaaca ttccgcgcgt ggaccagccg 60
ggccagggcg atgctgcggg tgcggtgtct gcgcggcggg agccgcggcg ccgaggcggt 120
gcactacatc ggatctcggc ttggacgaac cttgacagga tgggtgcagc gaactttcca 180
gagcacccag gcagctacgg cttcctcccg gaactcctgt gcagctgacg acaaagccac 240
tgagcctctg cccaaggact gccctgtctc ttcttacaac gaatgggacc ccttagagga 300
agtgatagtg ggcagagcag aaaacgcctg tgttccaccg ttcaccatcg aggtgaaggc 360
caacacatat gaaaagtact ggccatttta ccagaagcaa ggagggcatt attttcccaa 420
agatcatttg aaaaaggctg ttgctgaaat tgaagaaatg tgcaatattt taaaaacgga 480
aggagtgaca gtaaggaggc ctgaccccat tgactggtca ttgaagtata aaactcctga 540
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tgagattatc gaggctccca tggcatggcg ttcacgcttc tttgagtacc gagcgtacag 660
gtcaattatc aaagactact tccaccgtgg cgccaagtgg acaacagctc ctaagcccac 720
aatggctgat gagctttata accaggatta tcccatccac tctgtagaag acagacacaa 780
attggctgct cagggaaaat ttgtgacaac tgagtttgag ccatgctttg atgctgctga 840
cttcattcga gctggaagag atatttttgc acagagaagc caggttacaa actacctagg 900
cattgaatgg atgcgtaggc atcttgctcc agactacaga gtgcatatca tctcctttaa 960
agatcccaat cccatgcata ttgatgctac cttcaacatc attggacctg gtattgtgct 1020
ttccaaccct gaccgaccat gtcaccagat tgatcttttc aagaaagcag gatggactat 1080
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cctagactat gcaaaacatc aaagtgaatt ttccatgaat gtttttaata ttctcatctc 1980
aacattgtga tatatgctac taaaaacctt ttcatataca tcttacctca tttcaagtga 2040
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tggtcatcta agatttgttt acaaatgtgc aaattattta gagcatagac tttataagca 2220
ttaaaaaaaa ctaatggagg taaaacctaa atgcgatgtg aaataatttt agtgttgata 2280
ccgtatgtgt atttttattc taataaactt ttgtgttcca gaaaaaaaaa aaaaaaaaaa 2340
aa

Homo sapiens cDNA FLJ10143 fis, clone HEMBA1003281, weakly similar to POLIOVIRUS RECEPTOR PRECURSOR.

agcagaggga acagggaaga aacctaaagg ctgcaggctg ccaggtgtgc ttggagagcc 60
cccttcttcc gccgggcctc gcaagcagcg taggactgtg gagaagggcg gtgggcaagg 120
agggaactcg agagcagcct ccatgggcac acaggagggc tggtgcctgc tgctctgcct 180
ggctctatct ggagcagcag aaaccaagcc ccacccagca gaggggcagt ggcgggcagt 240
ggacgtggtc ctagactgct tcctggcgaa ggacggtgcg caccgtggag ctctcgccag 300
cagtgaggac agggcaaggg cctcccttgt gctgaagcag gtgccagtgc tggacgatgg 360
ctccctggag gacttcaccg atttccaagg gggcacactg gcccaagatg acccacctat 420
tatctttgag gcctcagtgg acctggtcca gattccccag gccgaggcct tgctccatgc 480
tgactgcagt gggaaggagg tgacctgtga gatctcccgc tactttctcc agatgacaga 540
gaccactgtt aagacagcag cttggttcat ggccaacgtg caggtctctg gacggggacc 600
tagcatctcc ttggtgatga agactcccag ggtcgccaag aatgaggcgc tctggcaccc 660
gacgctgaac ttgccactga gcccccaggg gactgtgcga actgcagtgg agttccaggt 720
gatgacacag acccaatccc tgagcttcct gctggggtcc tcagcctcct tggactgtgg 780
cttctccatg gcaccgggct tggacctcat cagtgtggag tggcgactgc agcacaaggg 840
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atgagactac tagaaagaaa cgacaccctt ccccaagccc ccacagctac tccaacccaa 1620
acaacaacca agccagttta atggtaggaa tttgtatttt ttgcctttgt tcagaataca 1680
tgacattggt aaat

Homo sapiens leucine aminopeptidase 3, mRNA (cDNA clone IMAGE:2821948), partial cds

gtctggccgt gagacgtttc gggagccgga gtctctccac cgcagacatg acgaagggcc 60
ttgttttagg aatctattcc aaagaaaaag aagatgatgt gccacagttc acaagtgcag 120
gagagaattt tgataaattg ttagctggaa agctgagaga gactttgaac atatctggac 180
cacctctgaa ggcagggaag actcgaacct tttatggtct gcatcaggac ttccccagcg 240
tggtgctagt tggcctcggc aaaaaggcag ctggaatcga cgaacaggaa aactggcatg 300
aaggcaaaga aaacatcaga gctgctgttg cagcggggtg caggcagatt caagacctgg 360
agctctcgtc tgtggaggtg gatccctgtg gagacgctca ggctgctgcg gagggagcgg 420
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agaacttggc acgccaattg atggagacgc cagccaatga gatgacgcca accagatttg 600
ccgaaattat tgagaagaat ctcaaaagtg ctagtagtaa aaccgaggtc catatcagac 660
ccaagtcttg gattgaggaa caggcaatgg gatcattcct cagtgtggcc aaaggatctg 720
acgagccccc agtcttcttg gaaattcact acaaaggcag ccccaatgca aacgaaccac 780
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caaaattgta actcagattt gtgatgctag gaacatgagc aaactgaaaa ttactatgca 1860
cttgtcagaa acaataaatg caacttgttg tgctcaaaaa aaaaaaaaaa aaaaaaaaaa 1920
aaaaaaaaaa aaaaaaaa

Homo sapiens mRNA for protein phosphatase 4 regulatory subunit 2 (PPP4R2 gene)

actgtacaaa tgctttattt ctattcaata tttagaagac agttataaac aagatgcatt 60
caatagcatg gtggcagatg aacatcagga aggaacatcc atgagcttcc atccacggaa 120
cctcaccatg gatacgcttg tgatcaaggg cctggtctcc cctcaagaca cggtcacaga 180
tcagaggcca caccatccta gcagtggagc agtaccagct gggacagggt ccttctgtga 240
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cccaaaagac ccgcggaggg aggcggaggc tgtgagggac tccgggaagc catggacgtc 660
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gaggtaaaaa gactcaggtt tgacaaagaa ggtgaagtca gagaaacagc cagtcaaacg 1440
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gataaagaca aagatagccg ttgtacccgg cagcactgta cagaagagga tgaagaagag 1560
gatgaagagg aagaagaaga gtcttttatg acatcaagag aaatgatccc agaaagaaaa 1620
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aatcaaatgg aggaatctga tgtgtctcaa gctgagaaag atttgctaca ttctgaaggt 1740
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tgatgacgaa gccacagaag tcaccgatga accactggaa caagactatt tagaaacatt 1920
tacatgcagt attttacaca cagttctggt tttaacactg tataaaactt ttatgtaaaa 1980
aagtgcacct ttagttttac aagtaaagca ggttgtaaaa taaagtactt tatggataat 2040
tcctgaaag

Human mRNA for (2'-5') oligo A synthetase E (1,6 kb RNA)

gaggcagttc tgttgccact ctctctcctg tcaatgatgg atctcagaaa taccccagcc 60
aaatctctgg acaagttcat tgaagactat ctcttgccag acacgtgttt ccgcatgcaa 120
atcgaccatg ccattgacat catctgtggg ttcctgaagg aaaggtgctt ccgaggtagc 180
tcctaccctg tgtgtgtgtc caaggtggta aagggtggct cctcaggcaa gggcaccacc 240
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tatgccctgg agctcctgac ggtctatgct tgggagcgag ggagcatgaa aacacatttc 780
aacacagccc aaggatttcg gacggtcttg gaattagtca taaactacca gcaactctgc 840
atctactgga caaagtatta tgactttaaa aaccccatta ttgaaaagta cctgagaagg 900
cagctcacga aacccaggcc tgtgatcctg gacccggcgg accctacagg aaacttgggt 960
ggtggagacc caaagggttg gaggcagctg gcacaagagg ctgaggcctg gctgaattac 1020
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cctgcttcct ccctgccatt catccctgcc cctctccatg aagcttgaga catatagctg 1140
gagaccattc tttccaaaga acttacctct tgccaaaggc catttatatt catatagtga 1200
caggctgtgc tccatatttt acagtcattt tggtcacaat cgagggtttc tggaattttc 1260
acatcccttg tccagaattc attcccctaa gagtaataat aaataatctc taacaccaaa 1320
aa

Homo sapiens A-kinase anchoring protein 18 beta mRNA, complete cds.

gctcgcagac tgtgctataa actgcaattt ctatttgggg tcctcacgga gaagaacacc 60
aggaaagaca gacaggacca gtgccatggg ccagctttgc tgctttcctt tctcaagaga 120
tgaaggaaaa atcagtgagt tggaaagctc gtcctctgca gtcctacaaa gatacagcaa 180
ggatataccc agttggtcaa gtggtgaaaa gaacggaggg gagcccgatg acgctgaact 240
agtaaggctc agtaagaggc tggtggagaa cgcggtgctc aaggctgtcc agcagtatct 300
ggaggaaaca cagaataaaa acaagccggg ggaggggagc tctgtgaaaa ccgaagcagc 360
tgatcagaat ggcaatgaca atgagaacaa caggaaatga gcccggaacg caggccccca 420
tgtctctgtg caaagcctcc ctgcttccct ctgctgagtc tag

Homo sapiens peptidyl prolyl isomerase H (cyclophilin H), mRNA (cDNA clone

```
cttctgcttc cgggtcggag ccatggcggt ggcaaattca agtcctgtta accccgtggt      60
gttctttgat gtcagtattg gcggtcagga agttggccgc atgaagatcg agctctttgc     120
agacgttgtg cctaagacgg ccgagaactt taggcagttc tgcaccggag aattcaggaa     180
agatggggtt ccaataggat acaaaggaag caccttccac agggtcataa aggatttcat     240
gattcagggt ggagattttg ttaatggaga tggtactgga gtcgccagta tttaccgggg     300
gccatttgca gatgaaaatt ttaaacttag acactcagct ccaggcctgc tttccatggc     360
gaacagtggt ccaagtacaa atggctgtca gttctttatc acctgctcta agtgcgattg     420
gctggatggg aagcatgtgg tgtttggaaa aatcatcgat ggacttctag tgatgagaaa     480
gattgagaat gttcccacag gccccaacaa taagcccaag ctacctgtgg tgatctcgca     540
gtgtggggag atgtagtcca gacaaagact gaatcaggcc ttcccttctt cttggtggtg     600
ttcttgagta agataatctg gactggcccc cgtctttgct tccctgcctg ctgctgcccc     660
atttgatcaa gagaccatgg aagtgtcaga gattcagaat ccaagattgt ctttaagttt     720
   tcaactgtaa ataaagtttt tttgtatgcg taaaaaaaaa aaaaa
```

Homo sapiens mRNA; cDNA DKFZp564C0362 (from clone DKFZp564C0362); complete cds

```
gggggaggct gtgatgggtt gacaggtgcg tgacagtggg agctgctctc ggcacaagca      60
tgtacggcaa aggcaagagt aacagcagcg ccgtcccgtc cgacagccag gcccgggaga     120
agttagcact ctacgtatat gaatatctgc tccatgtagg agctcagaaa tcagctcaaa     180
catttttatc agagataaga tgggaaaaaa acatcacatt gggggaacca ccaggattct     240
tacattcttg gtggtgtgta ttttgggatc tctactgtgc agctccagag agacgtgaaa     300
catgtgaaca ctcaagtgaa gcaaaagcct tccatgatta cagtgctgca gcagctccca     360
gtccagtgct aggaaacatt cccccaggag atggcatgcc agtaggtcct gtaccaccag     420
ggttctttca gccttttatg tcacctcggt accctggagg tccaaggccc ccattgagga     480
tacctaatca ggcacttgga ggtgtcccag gaagtcagcc attactcccc agaggaatgg     540
atccaactcg acaacaagga catccaaata tgggtgggcc aatgcagaga atgactcctc     600
caagaggaat ggtgccctta ggaccacaga actatggagg tgcaatgaga cccccactga     660
atgctttagg tggccctgga atgcctggaa tgaacatggg tccaggtggt ggtagacctt     720
ggccaaaccc aacaaatgcc aattcaatac catactcctc agcatctcct gggaattatg     780
taggtcctcc aggaggtgga gggccaccag gaacacccat catgcctagt ccagcagatt     840
caaccaactc tggtgataac atgtatactt taatgaatgc agtacctcct ggacctaaca     900
gacctaattt tccaatgggc cctgggtcag atggtcccat gggtggatta ggaggaatgg     960
agtcacatca catgaatggc tctttaggct caggagatat ggacagtatt tccaagaatt    1020
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ctacggaaga aaattattca tcacagtgta cagttaaaca aaggaatctc agtcacacca    1260
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catatacaca tacatacatt gacccacagg acattgtaaa atattatcac atgacatctt    1500
aagtagaaat aagtagggac ttttattcca tccttttttt cacgtttaca ttttaattat    1560
tacaagttgc tcctgccccc tccctgaact attttgtgct gtgtatatca ctgctttata    1620
taagttattt tttaaggtga actcagatgt tatggttttg tatatgtctg caatcatgga    1680
taggaataaa atcgcttatt tgagagcttt caaaaaaaaa aaaaaaaaaa c
```

Human interferon-induced cellular resistance mediator protein (MxB) mRNA, complete cds.

```
aagagatgat ttctccatcc tgaacgtgca gcgagcttgt caggaagatc ggaggtgcca      60
agtagcagag aaagcatccc ccagctctga cagggagaca gcacatgtct aaggcccaca     120
agccttggcc ctaccggagg agaagtcaat tttcttctcg aaaatacctg aaaaaagaaa     180
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ctccaaactg gcaggggggca gagaaggacg ctgctttcct cgccaaggac ttcaactttc     300
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agaacaacct gtacagccag tacgagcaga aggtgcgccc ctgcattgac ctcatcgact     420
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gcagcggaat cgtaaccagg tgtccgctgg tgctgaaact gaaaaagcag ccctgtgagg     600
catgggccgg aaggatcagc taccggaaca ccgagctaga gcttcaggac cctggccagg     660
tggagaaaga gatacacaaa gcccagaacg tcatggccgg gaatggccgg ggcatcagcc     720
atgagctcat cagcctggag atcacctccc ctgaggttcc agacctgacc atcattgacc     780
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gtaacgtgga cattgccacc acggaggcgc tgagcatggc ccatgaggtg gacccggaag     960
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ggtcccttc agatccagtg gccatgcccc ctgcttccca tggttcactg tcattgtgtt    2820
tcccagcctc tccactcccc cgccagaaag gagcctgagt gattctcttt tcttcttgtt    2880
tccctgatta tgatgagctt ccattgttct gttaagtctt gaagaggaat ttaataaagc    2940
 aaagaaactt tttaaaaacg t
```

Human Ro/SSA ribonucleoprotein homolog (RoRet) mRNA, complete cds.

```
gacccacgcg tccgaaaagc tatggcctca accaccagca ccaagaagat gatggaggaa      60
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agctactgcc acttgtgtat aacagacttc tttaaaaacc caagccaaaa gcaactgagg     180
caggagacat tctgctgtcc ccagtgtcgg gctccatttc atatggatag cctccgaccc     240
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gaggaacacg gagagcagtt ccacctgttc tgcgaagacg aggggcagct catctgctgg     360
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cagggctaca aggaaaagct ccagaaagct gtgacaaaac tgaagcaact tgaagacaga     480
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gtgactctgg atccagatac agctcatcac gaactaattc tctctgagga tcggagacaa     960
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gcataagaag tattttgagt tgaagacaat tgagaaaaaa aaaaaaaaaa aa            2872
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Homo sapiens cDNA FLJ10465 fis, clone NT2RP1001616.

```
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gtatttttt aatcacaagt ttgatacaaa atgttttat cgt                        1843
```

Homo sapiens histone 2, H2aa, mRNA (cDNA clone MGC:2238 IMAGE:3536984), complete cds.

ccaggcagga gtttctctcg gtgactacta tcgctgtcat gtctggtcgt ggcaagcaag 60
gaggcaaggc ccgcgccaag gccaagtcgc gctcgtcccg cgctggcctt cagttcccgg 120
tagggcgagt gcatcgcttg ctgcgcaaag gcaactacgc ggagcgagtg ggggccggcg 180
cgcccgtcta catggctgcg gtcctcgagt atctgaccgc cgagatcctg gagctggcgg 240
gcaacgcggc tcgggacaac aagaagacgc gcatcatccc tcgtcacctc cagctggcca 300
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tcttgcctaa catccaggcc gtactgctcc ctaagaagac ggagagtcac cacaaggcaa 420
agggcaagtg aggctgacgt ccggcccaag tgggcccagc ccggcccgcg tctcgaaggg 480
gcacctgtga actcaaaagg ctcttttcag agccacccac gttttcaaat aaaagagttg 540
ttaatgctga aaaaaaaaaa aaaaaaa

Homo sapiens transcription factor ISGF-3 mRNA, complete cds.

attaaacctc tcgccgagcc cctccgcaga ctctgcgccg gaaagtttca tttgctgtat 60
gccatcctcg agagctgtct aggttaacgt tcgcactctg tgtatataac ctcgacagtc 120
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atatccaaag ctgaatacat tctgctttca tcttggtcac atacaattat ttttacagtt 3240

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attagggtgg tatttagtct attagccaca aaattgggaa aggagtagaa aaagcagtaa      3420
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attaaatata atatcgacac agtgctttcc gtggcactgc atacaatctg aggcctcctc      3900
tctcagtttt tatatagatg gcgagaacct aagtttcagt tgattttaca attgaaatga      3960
ctaaaaaaca aagaagacaa cattaaaaac aatattgttt cta                        4003
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Homo sapiens mRNA; cDNA DKFZp564K2478 (from clone DKFZp564K2478); complete

```
agtcccgacg tggaactcag cagcggaggc tggacgcttg catggcgctt gagagattcc      60
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ccaggcagct gcggcctggg ggttttggag tgatcacgaa tgagcaaggc gtttgggctc     180
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atatgaatca agtgttttgt aactgctatt catttattca gcaaatattt attgatcatc    1800
tcttctccat aagatagtgt gataaacaca gtcatgaata aagttatttt ccacaaaaaa    1860
aaaaaaaaaa aaaa                                                      1874
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Homo sapiens cDNA FLJ20073 fis, clone COL02320.

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gaatttgttc ttcgatactg gtatgggaaa aagtaaattt ttgcaagata tgcacacact 240
cctactcaca agacaccgcg atgaacatga aggtgaaaca ggaaattggt tttccccatt 300
tattgaagca ttacataaag atgaaggaaa tgaagcagtt gaagctgtat tgcttgaaag 360
tatccatcgg ttcaacccaa atgcattcat ttgccaagcg ttggcaagac atttctacat 420
taaaaagaag gactttggca atgctctaaa ctgggcaaaa caagcaaaaa tcatagaacc 480
tgacaattct tatatctcag atacactggg tcaagtctac aaaagtaaaa taagatggtg 540
gatagaggaa aacggaggaa acgggaacat ttcagttgat gatctaattg ctcttttgga 600
tttagcagaa catgcctcaa gtgcattcaa agaatctcaa cagcaaagtg aagatagaga 660
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agctggttat caaggagaga tagaagttgg gctttacaca atccaaattc tccagctcat 780
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gaatgtctgg gaaaatattt ctcaaagaca gcaaaaacct ctcaaactga ggagcaacat 2340
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caatcagaaa aatttgaaca cagactagat atttgaggat attaaggtac tatattattg 3300

```
aagattccat ggttatgttt tttaaagagt tcatgccttt tagagataca tactaaagta      3360
tttgtaaata aatgacatga tctagaaaaa aaaaaaaaaa a                          3401
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Homo sapiens cDNA FLJ10913 fis, clone OVARC1000209, weakly similar to Oryza sativa submergence induced protein 2A mRNA.

gagcgcggcc cctgggttcg aacacggcac ccgcactgcg cgtcatggtg ctggcctggt 60
atatggacga cgccccgggc gacccgcggc aaccccaccg ccccgacccc ggccgcccag 120
tgggcctgga gcagctgcgg cggctcgggg tgctctactg gaagctggat gctgacaaat 180
atgagaatga tccagaatta gaaaagatcc gaagagagag gaactactcc tggatggaca 240
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ataccgcagg gcttgcttct gtcaagtgtg actctatctc agtaattaaa ataagtgctg 1620
atctactg 1628

Homo sapiens interferon induced transmembrane protein 1 (9-27), mRNA (cDNA clone MGC:5195 IMAGE:3464598), complete cds.

```
aaacgacagg ggaaaggagg tctcactgag caccgtccca gcatccggac accacagcgg        60
cccttcgctc cacgcagaaa accacacttc tcaaaccttc actcaacact tccttcccca       120
aagccagaag atgcacaagg aggaacatga ggtggctgtg ctgggggcac cccccagcac       180
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actgtgcaat gctggccctg cacgctgggg ctgttgcccc tgcccccttg gtcctgcccc       600
tagatacagc agtttatacc cacacacctg tctacagtgt cattcaataa agtgcacgtg       660
cttgtgaaaa aaaaaaaaaa aaa                                               683
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Homo sapiens cDNA: FLJ22242 fis, clone HRC02528.

```
aacttttaaa aactctcatt ggagtaagtc ttttcaagat gatcctccac aatggaggca      60
gcgttcctac ttgtcatcac acagctgaag acattgtttc ttaggtgtga aatcggggac     120
aaaggacaaa cagagacaca cggcattgtt catgggaggc atcgtcaccc tcctgggtgt     180
tctgtgggaa tttcctgtgt gaggaaaacg tggccacagg gttgtgctgt acccaccctt     240
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cgctgaataa acatttttaa agcaaaaaaa aaaaaaaaaa                          1300
```

ta77f02.x2 NCI_CGAP_HSC2 Homo sapiens cDNA clone IMAGE:2050107 3' similar to gb:L19779 HISTONE H2A.1 (HUMAN);, mRNA sequence.

tatacggctg cgagaagacg acagaagggg cacctgtgaa ctcaaaaggc tcttttcaga 60
gccacccacg ttttcaaata aaagagttgt taatgctggc cactcccaaa aaaaaaaaaa 120
aaaaaaaaaa agtcgtatcg a 141

H.sapiens centromere autoantigen C (CENPC) mRNA, complete cds.

cggatcgcag ctctcgcggc agtcgcctga gacttaaggt tattgcttgg ccgcggcctg 60
gtattccggc gattcgtttc ttgctcggct tcctggagct gtggtccgtg tgggcttcca 120
cctcagacag ttgcgctggc tcagcggggc cggaacatgg ctgcgtccgg tctggatcat 180
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aaaaaaaaaa aa 3132

Homo sapiens transcription factor ISGF-3 mRNA, complete cds.

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Homo sapiens ornithine decarboxylase (ODC1) mRNA, complete cds.

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cacttcctcg atgaaggttt tactgccaag gacattctgg accagaaaat taatgaagtt 180
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Homo sapiens hephaestin (HEPH) mRNA, complete cds.

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acttgttaga acact                                                    4215
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Human 18S rRNA gene, complete.

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Homo sapiens cell death regulator aven mRNA, complete cds.

```
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tcgccacagc gagcggcccg gagccgcagc ggcggtagcc agaggcggcg gcggaggcgg     180
cggcggggac ggaggcggac gccggggccg tggccgtggc cggggcttcc gcggcgctcg     240
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gactctggcc cttgtttcta gcctccttcc ttgcagtgtt tacaacatag ccagtgttta    1440
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```

Homo sapiens interferon, gamma-inducible protein 16, mRNA (cDNA clone MGC:9466 IMAGE:3914632), complete cds.

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cggttccgtt tctgggaact ttactgattt atctcccccc tcacacaaat aagcattgat 180
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ttaatttaaa aatgagagaa gagtatgaca aaattcagat tgctgacttg atggaagaaa 420
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tcaaaactga aggagcagag gcaactcctg gagctcagaa aagaaaaaaa tcaaccaaag 660
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cacagacaca gttcttccat gtgaaggttt taaacaccag cttgaaggag aaattcaatg 1020
gaaagaaaat catcatcata tcagattatt tggaatatga tagtctccta gaggtcaatg 1080
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tgcatctaca acttctataa tttgaaaaaa taaataaaca ttatcttttt tgtgaaaaaa 2700
aaaaaaaaa 2709

Homo sapiens guanylate binding protein 1, interferon-inducible, 67kDa, mRNA (cDNA clone MGC:3949 IMAGE:3606865), complete cds.

```
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tgaaatatta gtccagggat ccagtgagag acacagaagt gctagaagcc agtgctcgtg     180
aactaaggag aaaaagaaca gacaagggaa cagcctggac atggcatcag agatccacat     240
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gaaattcttc ccaaagaaaa aatgctttgt ctttgatcgg cccgttcacc gcaggaagct     960
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aaaaaaaaaa aaaaaa                                                    2176
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Homo sapiens interferon induced transmembrane protein 1 (9-27), mRNA (cDNA clone MGC:5195 IMAGE:3464598), complete cds.

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catccttcca aggtccaccg tgatcaacat ccacagcgag acctccgtgc ccgaccatgt     240
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```

Homo sapiens transcription factor ISGF-3 mRNA, complete cds.

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Homo sapiens phospholipid scramblase 1, mRNA (cDNA clone IMAGE:4253596), complete cds.

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aaa 1143

Homo sapiens metalloprotease disintegrin cysteine-rich protein, secreted form mRNA, complete cds.

gcgagaagag cagacaccgt gctcctggaa tcacccagca tgttgcaagg tctcctgcca 60
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Homo sapiens matrix metalloproteinase 7 (matrilysin, uterine), mRNA (cDNA clone MGC:3913 IMAGE:3545760), complete cds.

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Homo sapiens cDNA FLJ10650 fis, clone NT2RP2005853

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Homo sapiens transcription factor ISGF-3 mRNA, complete cds

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Homo sapiens RNA helicase (RIG-I) mRNA, complete cds.

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aaaaa 3065

Homo sapiens melanoma differentiation associated protein-5 (MDA5) mRNA, complete cds.

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ctctgaaaaa aaaaaaaaaa                                                3380
```

Homo sapiens signal transducer and activator of transcription 1, 91kDa, transcript variant beta, mRNA (cDNA clone MGC:3493 IMAGE:3627218), complete cds.

```
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Homo sapiens cDNA: FLJ21350 fis, clone COL02751.

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Homo sapiens IFI16b (IFI16b) mRNA, complete cds.

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tgaaaaaaaa a                                                       4151
```

Homo sapiens mRNA for STAT induced STAT inhibitor-2, complete cds.

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tcacatagag tatctccgaa tgcagctatg taaaagagaa ccaa 704

Homo sapiens transcription factor ISGF-3 mRNA, complete cds.

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Homo sapiens pancreas sodium bicarbonate cotransporter mRNA, complete cds.

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Homo sapiens interferon stimulated T-cell alpha chemoattractant precursor, mRNA, complete cds.

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gttgttcaag gcttccccat gttcaaaaga ggacgctgtc tttgcatagg ccctggggta       180
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Homo sapiens mRNA; cDNA DKFZp586J0323 (from clone DKFZp586J0323)

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gtatcaaatc tttactgcct ttttcaaatt cttaccattt ttataaaaag gagtcacact 300
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tttaaaaaaa aaaaaaaaaa 2480

Homo sapiens cDNA FLJ20637 fis, clone KAT03212.

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2010

Homo sapiens sodium bicarbonate cotransporter (HNBC1) mRNA, complete cds.

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Human BRCA1-associated RING domain protein (BARD1) mRNA, complete cds.

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Human 18S rRNA gene, complete.

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Human mRNA for 56-KDa protein induced by interferon

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qx82h04.x1 NCI_CGAP_GC6 Homo sapiens cDNA clone IMAGE:2009047 3', mRNA sequence.

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Human interferon-induced cellular resistance mediator protein (MxA) mRNA, complete cds.

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atttctagca g 2651

Homo sapiens cDNA: FLJ21726 fis, clone COLF1088.

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tccttgagta gttggccaag ggagagacct cctgcacaaa tggagggttt ggcctcacgc     180
agaaagaagc acacttggtt catccctggc agcaggaggg aaggcgtggg tgtagggaac     240
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```

xw86e11.x1 NCI_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2834924 3', mRNA sequence.

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aagaggaata ttggaccact gaaaatctca accaacgcta atattaggag cacacgtacc   420
atgaggaaga gaagggatgg ggaaaccaag atggcagagt tagagcaaca aagttagtaa   480
catgagagtt tcccagcaat ttgagtaaga                                    510
```

Human 71 kDa 2'5' oligoadenylate synthetase (p69 2-5A synthetase) mRNA, complete cds.

```
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gaagctgggt tggtttatcc aggaatacct gaagccctac gaagaatgtc agacactgat     120
cgacgagatg gtgaacacca tctgtgacgt ctgcaggaac cccgaacagt tccccctggt     180
gcagggagtg gccataggtg gctcctatgg acggaaaaca gtcttaagag gcaactccga     240
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tcctcttgcc aaagcaaaag acttttttct tggctttagc cttaaagata cttgaaggtc    2820
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```

Homo sapiens cDNA FLJ20035 fis, clone COL00213.

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cgatctgttt accaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa 1906

Homo sapiens monocarboxylate transporter 2 (hMCT2) mRNA, complete cds.

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gaaatggaag accatgtttc taaacacctg tcgccaggtt acttgaattt ccactagagg 120
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Homo sapiens interferon-induced protein 44, mRNA (cDNA clone MGC:24007

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601067066F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3453257 5', mRNA sequence.

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Human glutamate receptor subunit (GluH1) mRNA, complete cds.

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zn32e02.s1 Stratagene endothelial cell 937223 Homo sapiens cDNA clone IMAGE:549146 3', mRNA sequence.

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c 601

Homo sapiens mRNA expressed in osteoblast, complete cds.

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DE IMAGE:2552832 3', mRNA sequence.

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Homo sapiens mRNA for C11ORF25 gene

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tagaaaactt tttcactcaa taaattatta tttgatatgg t 6641

Homo sapiens isopentenyl-diphosphate delta isomerase, mRNA (cDNA clone

```
gtgttctaga acagatcaga cattttgtaa tgatgcctga aataaacact aaccacctcg      60
acaagcaaca ggttcaactc ctggcagaga tgtgtatcct tattgatgaa aatgacaata     120
aaattggagc tgagaccaag aagaattgtc acctgaacga gaacattgag aaaggattat     180
tgcatcgagc ttttagtgtc ttcttattca acaccgaaaa taagcttctg ctacagcaaa     240
gatcagatgc taagattacc tttccaggtt gttttacgaa tacgtgttgt agtcatccat     300
taagcaatcc agccgagctt gaggaaagtg acgcccttgg agtgaggcga gcagcacaga     360
gacggctgaa agctgagcta ggaattccct tggaagaggt tcctccagaa gaaattaatt     420
atttaacacg aattcactac aaagctcagt ctgatggtat ctggggtgaa catgaaattg     480
attacatttt gttggtgagg aagaatgtaa ctttgaatcc agatcccaat gagattaaaa     540
gctattgtta tgtgtcaaag gaagaactaa aagaacttct gaaaaaagca gccagtggtg     600
aaattaagat aacgccatgg tttaaaatta ttgcagcgac ttttctcttt aaatggtggg     660
ataacttaaa tcatttgaat cagtttgttg accatgagaa aatatacaga atgtgaatat     720
gtaggtaaat gattacagaa aaatttatct gcttaacaaa cttagaatga ctttttcctt     780
ttaaatttag ttctatcatt aatttatcat taaatttagt tctatcattt ggtactatca     840
ttaatgtatt atatacactg atactttaaa acttgtgtgg aaaaaactaa cttataattt     900
tgtatcacac accctggata tgtgttctgt ttctaagcga catttgtgag agattattgt     960
aaaatgagag cgagcaaata aaacttaatt taatctttgc agatacatac ttatgggaaa    1020
tttgaacaaa tgagtgaaac tctgtgtttt tagtaggctg tgataaacat ttccggagca    1080
cttgcagagg acttgctatt tgccaggtgc tttatgtatc attaaatttt tctcatagtt    1140
cagaaaaatg tgcaaaggaa actattgtct cgctccttca aaacagtctt aattaacttt    1200
catattagca gattaaacta gcagagcagg ttcaagggaa attaaatgat atggacccta    1260
atttgtatca ttctgagttg attgtgtggt ttattcattc tggaaacatg ttgatactta    1320
cagtcagcca ctgcttttga taagtgatat tgattaggtt gaatcttctt gtaaatagta    1380
tttaccagtt agcaaagtct gtgttttcag aattacagtg agcacagagg tgttcataaa    1440
atgggaattg agtcccactc ggtaagagtt gcttaaactt gacactgttg acatttgggc    1500
tggataaaac ccctgtggtg gggtctgtgc tgtgcattgc aggatggtga gcagcgtccc    1560
tctcatgtga cacccacagt tatgccggat gttgccagat gcccctaggg gacagagtca    1620
acccccaact gaggaccact gtcctacaga gtcaggaaat attgtaggga gaaaaaaata    1680
acaacaacaa aggcctgtgt taatgttaaa tagatgagat tatggaatgt gtatattaat    1740
gttaaaaatt gtaccttgat caatgtactt tttataaact tgccatagat atctcagatt    1800
tgaaacctca agacagattt attattctta aatgctgtat gataatgaag aaaaataaaa    1860
atttatttct tgcaaagtta caaaaaaaaa aaaaaaaaaa aaaaaaaaaa a             1911
```

Human prostaglandin endoperoxide synthase mRNA, complete cds.

```
gcgccatgag ccggagtctc ttgctccggt tcttgctgtt cctgctcctg ctcccgccgc      60
tccccgtcct gctcgcggac ccaggggcgc ccacgccagt gaatccctgt tgttactatc     120
catgccagca ccagggcatc tgtgtccgct tcggccttga ccgctaccag tgtgactgca     180
cccgcacggg ctattccggc cccaactgca ccatccctgg cctgtggacc tggctccgga     240
attcactgcg gcccagcccc tctttcaccc acttcctgct cactcacggg cgctggttct     300
gggagtttgt caatgccacc ttcatccgag agatgctcat gcgcctggta ctcacagtgc     360
gctccaacct tatccccagt ccccccacct acaactcagc acatgactac atcagctggg     420
agtctttctc caacgtgagc tattacactc gtattctgcc ctctgtgcct aaagattgcc     480
ccacacccat gggaaccaaa gggaagaagc agttgccaga tgcccagctc ctggcccgcc     540
gcttcctgct caggaggaag ttcatacctg acccccaagg caccaacctc atgtttgcct     600
tctttgcaca acacttcacc caccagttct tcaaaacttc tggcaagatg ggtcctggct     660
tcaccaaggc cttgggccat ggggtagacc tcggccacat ttatggagac aatctggagc     720
gtcagtatca actgcggctc tttaaggatg ggaaactcaa gtaccaggtg ctggatggag     780
aaatgtaccc gccctcggta gaagaggcgc ctgtgttgat gcactacccc cgaggcatcc     840
cgccccagag ccagatggct gtgggccagg aggtgtttgg gctgcttcct gggctcatgc     900
tgtatgccac gctctggcta cgtgagcaca accgtgtgtg tgacctgctg aaggctgagc     960
accccacctg gggcgatgag cagcttttcc agacgacccg cctcatcctc ataggggaga    1020
ccatcaagat tgtcatcgag gagtacgtgc agcagctgag tggctatttc ctgcagctga    1080
```

```
aatttgaccc agagctgctg ttcggtgtcc agttccaata ccgcaaccgc attgccatgg      1140
agttcaacca tctctaccac tggcaccccc tcatgcctga ctccttcaag gtgggctccc      1200
aggagtacag ctacgagcag ttcttgttca acacctccat gttggtggac tatggggttg      1260
aggccctggt ggatgccttc tctcgccaga ttgctggccg gatcggtggg ggcaggaaca      1320
tggaccacca catcctgcat gtggctgtgg atgtcatcag ggagtctcgg gagatgcggc      1380
tgcagccctt caatgagtac cgcaagaggt ttggcatgaa accctacacc tccttccagg      1440
agctcgtagg agagaaggag atggcagcag agttggagga attgtatgga gacattgatg      1500
cgttggagtt ctaccctgga ctgcttcttg aaaagtgcca tccaaactct atctttgggg      1560
agagtatgat agagattggg gctccctttt ccctcaaggg tctcctaggg aatcccatct      1620
gttctccgga gtactggaag ccgagcacat ttggcggcga ggtgggcttt aacattgtca      1680
agacggccac actgaagaag ctggtctgcc tcaacaccaa gacctgtccc tacgtttcct      1740
tccgtgtgcc ggatgccagt caggatgatg ggcctgctgt ggagcgacca tccacagagc      1800
tctgaggggc aggaaagcag cattctggag gggagagctt tgtgcttgtc attccagagt      1860
gctgaggcca gggctgatgg tcttaaatgc tcattttctg gtttggcatg gtgagtgttg      1920
gggttgacat ttagaacttt aagtctcacc cattatctgg aatattgtga ttctgtttat      1980
tcttccagaa tgctgaactc cttgttagcc cttcagattg ttaggagtgg ttctcatttg      2040
gtctgccaga atactgggtt cttagttgac aacctagaat gtcagatttc tggttgattt      2100
gtaacacagt cattctagga tgtggagcta ctgatgaaat ctgctagaaa gttagggggt      2160
tcttattttg cattccagaa tcttgacttt ctgattggtg attcaaagtg ttgtgttccc      2220
tggctgatga tccagaacag tggctcgtat cccaaatctg tcagcatctg gctgtctaga      2280
atgtggattt gattcatttt cctgttcagt gagatatcat agagacggag atcctaaggt      2340
ccaacaagaa tgcattccct gaatctgtgc ctgcactgag agggcaagga agtggggtgt      2400
tcttcttggg acccccacta agaccctggt ctgaggatgt agagagaaca ggtgggctgt      2460
attcacgcca ttggttggaa gctaccagag ctctatcccc atccaggtct tgactcatgg      2520
cagctgtttc tcatgaagct aataaaattc gccc                                  2554
```

602381868F1 NIH_MGC_93 Homo sapiens cDNA clone IMAGE:4499393 5', mRNA sequence.

```
tgtgaataga caagaagctg tactatatgt gctctctcag tggcaacaat gaagttttgc      60
aattctagaa cttggatttt ttttttaaca aaagtcccaa aacaccaaaa atgtaaacaa     120
gataagagat taatattgta gtgatgtaat ttaattaaag ttatattttg ggttaatttt     180
aacaactgaa gtcttattgt tgaaacttat tttcaacaaa actgtgcagt taaatttgta     240
tacgtattca catactgaaa gatgaaccgt taaaatagca cttaatttgt gtttcttcaa     300
tatgtcttga tatactttgt gcaattaata ttacacatgt aagttgtatg gcagtttaca     360
gaactcaatg acttgtcatg aggttttcat atgagctaca cattgtgtac attgatggtt     420
ttttatttt acataaatcc attctgtcat tttcaacttt atatataaat ctccaatgtt     480
atgggaaaca atagattgac acataatttt taaaaattat attgtaaaat ttctctatgg     540
tgaataaagt cttttaatat aaaaaaaaaa aaaaaaaaaa gaaacaaaaa aagaaaaaaa     600
aaaaaaaaaa aaaaaaaaaa agggggggggg ggaaaaaaaa accacggggg gcacaaatct     660
atccgccacc cacgtttaga tcaaaggggc cccaagagag agacaaaaga aagcgacggc     720
gacacaacaa ccgggggcac acgcgtacga ctagggagag cacaatcgcg gtagtaggac     780
acacacaaaa aacgagaaca aacaggaccg tgacaccacc tgcgattgcc taataaaaag     840
gcagaaacgg cacgcacagc gacgagcacg cagcagaaac accacacgca gcaccatgta     900
c                                                                     901
```

Homo sapiens mRNA for quinolinate phosphoribosyl transferase, complete cds.

```
atggacgctg aaggcctggc gctgctgctg ccgcccgtca ccctggcagc cctggtggac      60
agctggctcc gagaggactg cccagggctc aactacgcag ccttggtcag cggggcaggc     120
ccctcgcagg cggcgctgtg ggccaaatcc cctggggtac tggcagggca gcctttcttc     180
gatgccatat ttacccaact caactgccaa gtctcctggt tcctccccga gggatcgaag     240
ctggtgccgg tggccagagt ggccgaggtc cggggccctg cccactgcct gctgctgggg     300
gaacgggtgg ccctcaacac gctggcccgc tgcagtggca ttgccagtgc tgccgccgct     360
gcagtggagg ccgccagggg ggccggctgg actgggcacg tggcaggcac gaggaagacc     420
acgccaggct tccggctggt ggagaagtat gggctcctgg tgggcggggc cgcctcgcac     480
cgctacgacc tgggagggct ggtgatgttg aaggataacc atgtggtgcc ccccggtggc     540
gtggagaagg cggtgcgggc ggccagacag gcggctgact tcgctctgaa ggtggaagtg     600
gaatgcagca gcctgcagga ggtcgtccag gcagctgagg ctggcgccga ccttgtcctg     660
ctggacaact tcaagccaga ggagctgcac cccacggcca ccgcgctgaa ggcccagttc     720
ccgagtgtgg ctgtggaagc cagtgggggc atcaccctgg acaacctccc ccagttctgc     780
gggccgcaca tagacgtcat ctccatgggg atgctgaccc aggcggtccc agcccttgat     840
ttctccctca agctgtttgc caaagaggtg gctccagtgc ccaaaatcca ctag           894
```

Homo sapiens mRNA for cytochrome P-450 HFLa, complete cds.

```
gtgatggatc tcatcccaaa cttggccgtg gaaacctggc ttctcctggc tgtcagcctg      60
atactcctct atctatatgg aacccgtaca catggacttt ttaagaagct tggaattcca     120
gggcccacac ctctgccttt tttgggaaat gctttgtcct tccgtaaggg ctattggacg     180
tttgacatgg aatgttataa aaagtataga aaagtctggg gtatttatga ctgtcaacag     240
cctatgctgg ctatcacaga tcccgacatg atcaaaacag tgctagtgaa agaatgttat     300
tctgtcttca caaaccggag gcctttcggg ccagtgggat ttatgaaaaa tgccatctct     360
atagctgagg atgaagaatg gaagagaata cgatcattgc tgtctccaac attcaccagc     420
ggaaaactca aggagatggt ccctatcatt gcccagtatg gagatgtgtt ggtgagaaat     480
ctgaggcggg aagcagagac aggcaagcct gtcaccttga aacacgtctt tggggcctac     540
agcatggatg tgatcactag cacatcattt ggagtgagca tcgactctct caacaatcca     600
caagacccct ttgtggaaaa caccaagaag cttttaagat ttaatccatt agatccattc     660
gttctctcaa taaaagtctt tccattcctt accccaattc ttgaagcatt aaatatcact     720
gtgtttccaa gaaaagttat aagttttcta acaaaatctg taaaacagat aaaagaaggt     780
cgcctcaaag agacacaaaa gcaccgagtg gatttccttc agctgatgat tgactctcag     840
aattcaaaag actctgagac ccacaaagct ctgtctgatc tggagctcat ggcccaatca     900
attatcttta tttttgctgg ctatgaaacc acgagcagtg ttctctcctt cattatatat     960
gaactggcca ctcaccctga tgtccagcag aaagtgcaga aggaaattga tacagtttta    1020
cccaataagg caccacccac ctatgatact gtgctacagt tggagtatct tgacatggtg    1080
gtgaatgaaa cactcagatt attcccagtt gctatgagac ttgagagggt ctgcaaaaaa    1140
gatgttgaaa tcaatgggat gtttattccc aaaggggtgg tggtgatgat tccaagctat    1200
gttcttcatc atgacccaaa gtactggaca gagcctgaga agttcctccc tgaaaggttc    1260
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agaaactgca ttggcatgag gtttgctctc gtgaacatga aacttgctct agtcagagtc    1380
cttcagaact tctccttcaa accttgtaaa gaaacacaga tccccctgaa attacgcttt    1440
ggaggacttc ttctaacaga aaaacccatt gttctaaagg ctgagtcaag ggatgagacc    1500
gtaagtggag cctgatttcc ctaaggactt ctggtttgct ctttaagaaa gctgtgcccc    1560
agaacaccag agacctcaaa ttactttaca aatagaaccc tgaaatgaag acgggcttca    1620
tccaatgtgc tgcataaata atcagggatt ctgtacgtgc attgtgctct ctcatggtct    1680
gtatagagtg ttatacttgg taatatagag gagatgacca aatcagtgct ggggaagtag    1740
atttggcttc tctgcttctc ataggactat ctccaccacc cccagttagc accattaact    1800
cctcctgagc tctgataaca taattaacat ttctcaataa tttcaaccac aatcattaat    1860
aaaaatagga attattttga tggctctaac agtgacattt atatcatgtg ttatatctgt    1920
agtattctat agtaagcttt atattaagca aatcaataaa aacctcttta c              1971
```

Human mRNA for endothelin converting enzyme, complete cds.

```
atgcggggcg tgtggccgcc cccggtgtcc gccctgctgt cggcgctggg gatgtcgacg      60
tacaagcggg ccacgctgga cgaggaggac ctggtggact cgctctccga gggcgacgca     120
taccccaacg gcctgcaggt gaacttccac agcccccgga gtggccagag gtgctgggct     180
gcacggaccc aggtggagaa gcggctggtg gtgttggtgg tacttctggc ggcaggactg     240
gtggcctgct tggcagcact gggcatccag taccagacaa gatccccctc tgtgtgcctg     300
agcgaagctt gtgtctcagt gaccagctcc atcttgagct ccatggaccc cacagtggac     360
ccctgccatg acttcttcag ctacgcctgt gggggctgga tcaaggccaa cccagtccct     420
gatggccact cacgctgggg gaccttcagc aacctctggg aacacaacca agcaatcatc     480
aagcacctcc tcgaaaactc cacggccagc gtgagcgagg cagagagaaa ggcgcaagta     540
tactaccgtg cgtgcatgaa cgagaccagg atcgaggagc tcagggccaa acctctaatg     600
gagttgattg agaggctcgg gggctggaac atcacaggtc cctgggccaa ggacaacttc     660
caggacaccc tgcaggtggt caccgcccac taccgcacct caccttctct ctctgtctat     720
gtcagtgccg attccaagaa ctccaacagc aacgtgatcc aggtggacca gtctggcctg     780
ggcttgccct cgagagacta ttacctgaac aaaactgaaa acgagaaggt gctgaccgga     840
tatctgaact acatggtcca gctggggaag ctgctgggcg gcggggacga ggaggccatc     900
cggccccaga tgcagcagat cttggacttt gagacggcac tggccaacat cacatcccca     960
caggagaagc gccgtgatga ggagctcatc taccacaaag tgacggcagc cgagctgcag    1020
accttggcac ccgccatcaa ctggttgcct tttctcaaca ccatcttcta ccccgtggag    1080
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ctcatcaaca ccaccgacag atgcctgctc aacaactaca tgatctggaa cctggtgcgg    1200
aaaacaagct ccttccttga ccagcgcttt caggacgccg atgagaagtt catggaagtc    1260
atgtacggga ccaagaagac ctgtcttcct cgctggaagt tttgcgtgag tgacacagaa    1320
aacaacctgg gctttgcgtt gggccccatg tttgtcaaag caaccttcgc cgaggacagc    1380
aagagcatag ccaccgagat catcctggag attaagaagg catttgagga aagcctgagc    1440
accctgaagt ggatggatga ggaaacccga aaatcagcca aggaaaaggc cgatgccatc    1500
tacaacatga taggataccc caacttcatc atggatccca aggagctgga caaagtgttt    1560
aatgactaca ctgcagttcc agacctctac tttgaaaatg ccatgcggtt tttcaacttc    1620
tcatggaggg tcactgccga tcagctcagg aaagccccca acagagatca gtggagcatg    1680
accccgccca tggtgaacgc ctactactcg cccaccaaga atgagattgt gtttccggcc    1740
gggatcctgc aggcaccatt ctacacacgc tcctcaccca aggccttaaa ctttggtggc    1800
ataggtgtcg tcgtgggcca tgagctgact catgcttttg atgatcaagg acgggagtat    1860
gacaaggacg ggaacctccg gccatggtgg aagaactcat ccgtggaggc cttcaagcgt    1920
cagaccgagt gcatggtaga gcagtacagc aactacagcg tgaacgggga gccggtgaac    1980
gggcggcaca ccctggggga gaacatcgcc gacaacgggg gtctcaaggc ggcctatcgg    2040
gcttaccaga actgggtgaa gaagaacggg gctgagcact cgctccccac cctgggcctc    2100
accaataacc agctcttctt cctgggcttt gcacaggtct ggtgctccgt ccgcacacct    2160
gagagctccc acgaaggcct catcaccgat ccccacagcc cctctcgctt ccgggtcatc    2220
ggctccctct ccaattccaa ggagttctca gaacacttcc gctgcccacc tggctcaccc    2280
atgaacccgc ctcacaagtg cgaagtctgg taaggacgaa gcggagagag ccaagacgga    2340
ggaggggaag gggctgagga cgagaccccc atccagcctc cagggcattg ctcagcccgc    2400
ttggccacc                                                            2409
```

602386668F1 NIH_MGC_93 Homo sapiens cDNA clone IMAGE:4515521 5', mRNA

```
gcagaatgga agcttagagg aacttgcctg tgagcgctgg tcttgtgttg gtttgtgatg      60
taacgatctt gctggggttt tttgcttgtt ttgagggaaa tgtcttggag taaattttaa     120
gttcctggag ttaatttgtt ttacaggaat ttgtttttta aaaaaatagg atcattctga     180
acttggaatg acccccttat atattttctg aaaatgaaaa cagttacatg aaaaaaattt     240
ccaatgaaga tgtcagcatt ttatgaaaaa ccagaagtta ttagatgaaa gcagcgagtg     300
aatctttaaa acagacttga tcacgcacac acaataagtc tttctctccg aaaccggaag     360
taaatctata tctgttagaa ataatgtagc caaaagaatg taaatttgag gatttttgc      420
caatagttta tagaaaatat atgaaccaaa gtgatttgag tttgtaaaaa tgtaaaatag     480
tatgaacaaa atttgcactc taccagattt gaacatctag tgaggttcac attcatacta     540
agttttcaac attgtgttct tttggcattc atttttact tttattaaag gttcaaaacc      600
aaaaaagaaa aaaag                                                      615
```

Homo sapiens mRNA for Rev-ErbAalpha protein (hRev gene)

ccgttgcctc aacgtccaac ccttctgcag ggctgcagtc cggccacccc aagaccttgc 60
tgcagggtgc ttcggatcct gatcgtgagt cgcggggtcc actccccgcc cttagccagt 120
gcccaggggg caacagcggc gatcgcaacc tctagtttga gtcaaggtcc agtttgaatg 180
accgctctca gctggtgaag acatgaccac cctggactcc aacaacaaca caggtggcgt 240
catcacctac attggctcca gtggctcctc cccaagccgc accagccctg aatccctcta 300
tagtgacaac tccaatggca gcttccagtc cctgacccaa ggctgtccca cctacttccc 360
accatccccc actggctccc tcacccaaga cccggctcgc tcctttggga gcattccacc 420
cagcctgagt gatgacggct ccccttcttc ctcatcttcc tcgtcgtcat cctcctcctc 480
cttctataat gggagccccc ctgggagtct acaagtggcc atggaggaca gcagccgagt 540
gtcccccagc aagagcacca gcaacatcac caagctgaat ggcatggtgt tactgtgtaa 600
agtgtgtggg gacgttgcct cgggcttcca ctacggtgtg ctcgcctgcg agggctgcaa 660
gggctttttc cgtcggagca tccagcagaa catccagtac aaaaggtgtc tgaagaatga 720
gaattgctcc atcgtccgca tcaatcgcaa ccgctgccag caatgtcgct tcaagaagtg 780
tctctctgtg ggcatgtctc gagacgctgt gcgttttggg cgcatcccca aacgagagaa 840
gcagcggatg cttgctgaga tgcagagtgc catgaacctg gccaacaacc agttgagcag 900
ccagtgcccg ctggagactt cacccaccca gcaccccacc ccaggcccca tgggcccctc 960
gccacccccc gctccggtcc cctcaccccc ggtgggcttc tcccagtttc cacaacagct 1020
gacgcctccc agatccccaa gccctgagcc cacagtggag gatgtgatat cccaggtggc 1080
ccgggcccat cgagagatct tcacctacgc ccatgacaag ctgggcagct cacctggcaa 1140
cttcaatgcc aaccatgcat caggtagccc tccagccacc accccacatc gctgggaaaa 1200
tcagggctgc ccacctgccc ccaatgacaa caacaccttg gctgcccagc gtcataacga 1260
ggccctaaat ggtctgcgcc aggctccctc ctcctaccct cccacctggc ctcctggccc 1320
tgcacaccac agctgccacc agtccaacag caacgggcac cgtctatgcc ccacccacgt 1380
gtatgcagcc ccagaaggca aggcacctgc caacagtccc cggcagggca actcaaagaa 1440
tgttctgctg gcatgtccta tgaacatgta cccgcatgga cgcagtgggc gaacggtgca 1500
ggagatctgg gaggatttct ccatgagctt cacgcccgct gtgcgggagg tggtagagtt 1560
tgccaaacac atcccgggct tccgtgacct ttctcagcat gaccaagtca ccctgcttaa 1620
ggctggcacc tttgaggtgc tgatggtgcg ctttgcttcg ttgttcaacg tgaaggacca 1680
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Homo sapiens insulin induced protein 1 (INSIG1) gene, complete cds.

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Homo sapiens tumor rejection antigen (gp96) 1, mRNA (cDNA clone

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aaaaataaag agattttcct gagagaactg atttcaaatg cttctgatgc tttagataag     420
ataaggctaa tatcactgac tgatgaaaat gctctttctg gaaatgagga actaacagtc     480
aaaattaagt gtgataagga gaagaacctg ctgcatgtca cagacaccgg tgtaggaatg     540
accagagaag agttggttaa aaaccttggt accatagcca aatctgggac aagcgagttt     600
ttaaacaaaa tgactgaagc acaggaagat ggccagtcaa cttctgaatt gattggccag     660
tttggtgtcg gtttctattc cgccttcctt gtagcagata aggttattgt cacttcaaaa     720
cacaacaacg atacccagca catctgggag tctgactcca atgaattttc tgtaattgct     780
gacccaagag gaaacactct aggacgggga acgacaatta cccttgtctt aaaagaagaa     840
gcatctgatt accttgaatt ggatacaatt aaaaatctcg tcaaaaaata ttcacagttc     900
ataaactttc ctatttatgt atggagcagc aagactgaaa ctgttgagga gcccatggag     960
gaagaagaag cagccaaaga agagaaagaa gaatctgatg atgaagctgc agcaagacga    1020
agatgaagaa atggatgtgg gaacagatga agaagaagaa acagcaaagg aatctacagc    1080
tgaaaaagat gaattgtaaa ttatactctc accatttgga tcctgtgtgg agagggaatg    1140
tgaaatttac atcatttctt tttgggagag acttgttttg gatgcccccc aatccccttc    1200
tcccctgcac tgtaaaatgt gggattatgg gtcacaggaa aaagtgggtt ttttagttga    1260
attttttttta acattcctca tgaatgtaaa tttgtactat ttaactgact attcttgatg    1320
taaaatcttg tcatgtgtat aaaaataaaa aagatcccaa ataaaaaaaa aaaaaaaaaa    1380
a                                                                    1381
```

Homo sapiens tumor suppressor deleted in oral cancer-related 1, mRNA (cDNA clone MGC:3779 IMAGE:3659410), complete cds.

```
gcgcgcaagg caccggtggc agcggcgacg gcagctgcga cagcaacccc tgctgggccg      60
aaactgggca gagcggagca gacgtctgaa gcagcgcgag tgaggcgcga gggtagcgcc     120
cgcgcccggg aagacccctc ggcgcgaacc ggcagcccag ccccgggtcc cggttcccaa     180
ggccccgcct ctagggcctg gggactaatc ggattgagag cgcgccggcc cgggccgcga     240
actcgccaat tgcggagggc ggtggccacc gcccaatccg gagcagacag gtgcgaggtc     300
cggaaggcgg aggccaatcg gcggcggttg cgacctgctg gggcaggtct cggccaataa     360
ggaggctcga gtgacatctt cgcgcaccaa tcgggagtga gggagcattc gtgcccgctc     420
gcccttccgg ccagacctct atttaccagg ggcgtgcagc ccgcttgcca atcagagcgc     480
ggctgagcgg ccccgcagcc aacccccgag gagcggccgg ctggcgtccg ccgcgcccag     540
gagttgggga tgtcctacaa acccatcgcc cctgctccca gcagcacccc tggctccagc     600
acccctgggc cgggcacccc ggtccctaca ggaagcgtcc cgtcgccgtc gggctcagtg     660
ccaggagccg gcgctccttt cagaccgctg tttaacgact ttggaccgcc ttccatgggc     720
tacgtgcagg cgatgaagcc acccggcgcc cagggctccc agagcaccta cacggacctg     780
ctgtcagtca tagaggagat gggcaaagag atccggccta cctatgctgg cagcaagagc     840
gccatggagc gcctgaagag aggtatcatc catgcccggg ccctagtcag agagtgcctg     900
gcagagacag agcggaacgc ccgcacgtaa caggaagcgc ctcggcctca gcgtctggac     960
ctatccggcc actgcagagc acccgcttct ccctggcctt catcccgagt tgcactaacc    1020
atcctgggct tcctgtcctg tgtcccttgg tgggtccccc ccaggaacca aggagtggcc    1080
ctccaggtgg cagcactaag gacacccccc cacaacaaga gttagcagcg aggtccccat    1140
gagtcccacc catgacctgc cgacagtgtt gcccaccgga acttttgtgg cccctaccgc    1200
tcagcccttc ccagcacttc tcccactttg tcccgagcct ccttctcccc cagcaggggc    1260
acaggcctgg cacctccctg ccttgtgtcc tgagccatag tgactctttt atctgtgtgt    1320
cttttgctaa atatgccctt tttatattaa taaaagatga tttggagttg tgctctcaaa    1380
aaaaaaaaaa aaaaaaa                                                   1397
```

Homo sapiens TNFR-related death receptor-6 (DR6) mRNA, complete cds.

```
atggggacct ctccgagcag cagcaccgcc ctcgcctcct gcagccgcat cgcccgccga      60
gccacagcca cgatgatcgc gggctccctt ctcctgcttg gattccttag caccaccaca     120
gctcagccag aacagaaggc ctcgaatctc attggcacat accgccatgt tgaccgtgcc     180
accggccagg tgctaacctg tgacaagtgt ccagcaggaa cctatgtctc tgagcattgt     240
accaacacaa gcctgcgcgt ctgcagcagt tgccctgtgg ggacctttac caggcatgag     300
aatggcatag agaaatgcca tgactgtagt cagccatgcc catggccaat gattgagaaa     360
ttaccttgtg ctgccttgac tgaccgagaa tgcacttgcc cacctggcat gttccagtct     420
aacgctacct gtgccccca tacggtgtgt cctgtgggtt ggggtgtgcg gaagaaaggg     480
acagagactg aggatgtgcg gtgtaagcag tgtgctcggg gtaccttctc agatgtgcct     540
tctagtgtga tgaaatgcaa agcatacaca gactgtctga gtcagaacct ggtggtgatc     600
aagccgggga ccaaggagac agacaacgtc tgtggcacac tcccgtcctt ctccagctcc     660
acctcacctt cccctggcac agccatcttt ccacgccctg agcacatgga aacccatgaa     720
gtcccttcct ccacttatgt tcccaaaggc atgaactcaa cagaatccaa ctcttctgcc     780
tctgttagac caaaggtact gagtagcatc caggaaggga cagtccctga caacacaagc     840
tcagcaaggg ggaaggaaga cgtgaacaag accctcccaa accttcaggt agtcaaccac     900
cagcaaggcc cccaccacag acacatcctg aagctgctgc cgtccatgga ggccactggg     960
ggcgagaagt ccagcacgcc catcaagggc cccaagaggg gacatcctag acagaaccta    1020
cacaagcatt ttgacatcaa tgagcatttg ccctggatga ttgtgctttt cctgctgctg    1080
gtgcttgtgg tgattgtggt gtgcagtatc cggaaaagct cgaggactct gaaaaagggg    1140
ccccggcagg atcccagtgc cattgtggaa aaggcagggc tgaagaaatc catgactcca    1200
acccagaacc gggagaaatg gatctactac tgcaatggcc atggtatcga tatcctgaag    1260
cttgtagcag cccaagtggg aagccagtgg aaagatatct atcagtttct ttgcaatgcc    1320
agtgagaggg aggttgctgc tttctccaat gggtacacag ccgaccacga gcgggcctac    1380
gcagctctgc agcactggac catccggggc cccgaggcca gcctcgccca gctaattagc    1440
gccctgcgcc agcaccggag aaacgatgtt gtggagaaga ttcgtgggct gatggaagac    1500
accacccagc tggaaactga caaactagct ctcccgatga gccccagccc gcttagcccg    1560
agccccatcc ccagccccaa cgcgaaactt gagaattccg ctctcctgac ggtggagcct    1620
tccccacagg acaagaacaa gggcttcttc gtggatgagt cggagccccc tctccgctgt    1680
gactctacat ccagcggctc ctccgcgctg agcaggaacg gttcctttat taccaaagaa    1740
aagaaggaca cagtgttgcg gcaggtacgc ctggaccccc gtgacttgca gcctatcttt    1800
gatgacatgc tccactttct aaatcctgag gagctgcggg tgattgaaga gattccccag    1860
gctgaggaca aactagaccg gctattcgaa attattggag tcaagagcca ggaagccagc    1920
cagaccctcc tggactctgt ttatagccat cttcctgacc tgctgtag                 1968
```

601848574F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4079202 5', mRNA sequence.

```
acaatggtat agatttcaca acacaaaaag gacattggtg gatgttactg cacattttaa   60
attcttaaca ctaatttatc tgtataagtg tttatatgca tattttggga cataaacagt  120
ttatgtaaaa ttagtaatga atgatggcaa cgagggcact gttatcttcg ttgttttcaa  180
tgatcattta gcattcaatg atggaacagc tggtataaca taagtggtcg gcatgaaata  240
tttgagatcg aaacttctgt gccttgaaca gaacttatat cttagattct ctctcacatt  300
ttctgtggag ctggggttga ataggaacca gatgatgttc actgctgaaa ttccataatg  360
cttcccattg aagggaagtg agaaccagga aagctgcttt cacgtcatgt gccatccagt  420
actgacaggg aagaaagatg tagttttcca gtagtgatga atcacattat gaattacatt  480
tcttcttaag aagtaaaaac tcagaatgta ccatctgtgt ttcctttcag ttcattaaat  540
ggcatcataa cagatgactt gtgctaagtt caatagagtt accacatctt ttactattat  600
gcaaaaatat taactttaat gaaccattgc ttggacatga tttcctatac attaccattg  660
ggccgaatgt gttggtcata ctatcacgca ctaaacctgg gtgtttacac tgggcaccgc  720
gcttcaccgg gcataaggcg gacaacggtc ttaggcaaac tcgggtcctc gaaac       775
```

Homo sapiens clone PP1722 unknown mRNA.

gctgtgtggc ccaggctttt ctcaaactcc tgagggcaag cgatcctccc acctcagcct 60
cctgagtagc tgggactaca ggcatgtgcc actagacctg gctctaaaga catatatgac 120
acacgaaacc atttattttt catttcacaa tgtttattca catatatggt attagtattc 180
taatgtagtg atgcactcta aatttgcatt atatttccta gaacatctga acagagcata 240
ggaaattccc tattttgcca ttatcagttc taacaaaaat cttaaaagca ctttatcatt 300
tcatttccct gcactgtaat ttttttaaat gatcaaaaac agtatcatac caaggcttac 360
ttatattgga atactatttt agaaagttgt gggctgggtt gtatttataa atcttgttgg 420
tcagatgtct gcaatgagta aatttagcac cattatcagg aagctttctc accaatgaca 480
acttcattgg aagattttaa tgaaagtgta gcatactcta gggaaaaaat atgaatattt 540
tagcatctat gtattgaaaa ttatgttgaa taaatgtcag actatttttt acataacgtt 600
gcttctgttt aattttgtca cgttcagagg tgggggggtag gagatgtaag cccttgacag 660
caaaataatt ccttttgctt gatttcagac agttgcatca gctcctttgt tctgtgttca 720
tgttacactt atttaggtgg ctgaatccac agaggagcct gctggttcta atcggggaca 780
gtatcctgag gattcctcaa gtgatggttt aaggcaaagg gaagttcttc ggaacctttc 840
ttcccctgga tgggaaaaca tctcaaggcc tgaagctgcc cagcaggcat tccaaggcct 900
gggtcctggt ttctccggtt acacacccta tgggtggctt cagctttcct ggttccagca 960
gatatatgca cgacagtact acatgcaata tttagcagcc actgctgcat caggggcttt 1020
tgttccacca ccaagtgcac aagagatacc tgtggtctct gcacctgctc cagcccctat 1080
tcacaaccag tttccagctg aaaaccagcc tgccaatcag aatgctgctc ctcaagtggt 1140
tgttaatcct ggagccaatc aaaatttgcg gatgaatgca caaggtggcc ctattgtgga 1200
agaagatgat gaaataaatc gagattggtt ggattggacc tattcagcag ctacattttc 1260
tgtttttctc agtatcctct actttctactc ctccctgagc agattcctca tggtcatggg 1320
ggccaccgtt gttatgtacc tgcatcacgt tgggtggttt ccatttagac cgaggccggt 1380
tcagaacttc ccaaatgatg gtcctcctcc tgacgttgta aatcaggacc ccaacaataa 1440
cttacaggaa ggcactgatc ctgaaactga agaccccaac cacctccctc cagacaggga 1500
tgtactagat ggcgagcaga ccagcccctc ctttatgagc acagcatggc ttgtcttcaa 1560
gactttcttt gcctctcttc ttccagaagg ccccccagcc atcgcaaact gatggtgttt 1620
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tgcctctcct ggacatggca atgatgagtt tttaaaaaac agtgtggatg atgatatgct 1740
tttgtgagca agcaaaagca gaaacgtgaa gccgtgatac aaattggtga acaaaaaatg 1800
cccaaggctt ctcatgtctt tattctgaag agctttaata tatactctat gtagtttaat 1860
aagcactgta cgtagaaggc cttaggtgtt gcatgtctat gcttgaggaa cttttccaaa 1920
tgtgtgtgtc tgcatgtgtg tttgtacata gaagtcatag atgcagaagt ggttctgctg 1980
gtacgatttg attcctgttg gaatgtttaa attacactaa gtgtactact ttatataatc 2040
aatgaaattg ctagacatgt tttagcagga cttttctagg aaagacttat gtataattgc 2100
tttttaaaat gcagtgcttt actttaaact aaggggaact ttgcggaggt gaaaaccttt 2160
gctgggtttt ctgttcaata aagttttact atgaatgaca aaaaaaaaaa aaaaaaa 2217

Homo sapiens hypothetical protein FLJ11259, mRNA (cDNA clone MGC:8787 IMAGE:3925141), complete cds.

```
gcaaaatcaa acctgctatt tcagcactcc tgtttttaac ttggtgtctt tagtgcttgg      60
attggtggga tgtttcggaa tgggcattgt cgccaatttt caggagttag ctgtgccagt     120
ggttcatgac gggggcgctc ttttggcctt tgtctgtggt gtcgtgtaca cgctcctaca     180
gtccatcatc tcttacaaat catgtcccca gtggaacagt ctctcgacat gccacatacg     240
gatggtcatc tctgccgttt cttgcgcagc tgtcatcccc atgattgtct gtgcttcact     300
aatttccata accaagctgg agtggaatcc aagagaaaag gattatgtat atcacgtagt     360
gagtgcgatc tgtgaatgga cagtggcctt tggttttatt ttctacttcc taactttcat     420
ccaagatttc cagagtgtca ccctaaggat atccacagaa atcaatggtg atatttgaag     480
aaagaagaat tcagtctcac tcagtgaatg tcgcaggcca tttctaaaag tgctacagag     540
gacagacagg gttttgaggc caccctgatt attgggatgc atctgcagca catccaggac     600
ttgaatttca ttacgagttc ctaatagttg tatttctaaa gatgtttcct agagaatgta     660
cagccttatg acactgtagt gatgttttta taattttcta agtagatttt tttatattaa     720
caaattcata tacagaaaaa ataaggtgtt acaaaaaatg gagagctctt atttttgtac     780
agattctgtc gttttttttt tatttgtgtg agatttatgg aaatacacta aatgagtaat     840
tcaggttcag tacatttatt acaaagtgaa atcaggggat attcatttgt aaatttttatt    900
cttagtgaat gaactgtata attttttttta tcaggagagc acttataaaa ttcaatttat    960
aaagatcata tacccaaatc ataaagattt agttgataca ttaacactaa gatactctga    1020
ttttagcca aactaaacaa agtgcttcta ctgagaggcc tttataccac catgtacagt     1080
aattctaagt gaatacggaa gaccttggtt ttgaaattct gccaccttgt ttctccctgc    1140
tcatgaggtc gcacctttg ctcttgctgc taattgccca ttcttagtgg gtgtaatgcc     1200
aggtggaatg gtttcaacaa gtcaggtgaa aaccatcctt tattgttgct ggcacaactt    1260
gatatatagt ctgactcaga actgaagctc acatctcaaa ttcatttcat gccagtaaat    1320
gtggcaaaga gaagaaaggc ccaagagcga gacaagaaga atggagaagg gggcagccaa    1380
gaagaacttc tgggttcagg gtactgttta tttgctcctt ctcttcatgc ctgtggctgg    1440
atgtcccaca acactataag aaatataagt caagcccttt gtgttaagca agaactacag    1500
actccatctt ttcacccaaa tcatgaatga ccaataaaaa gcaagttatt ccagaggaag    1560
aagcagccct tgaaaaataa ggcttaggct tgaaaggtga agagcaggaa ttctctcttt    1620
caaatcctag agcataaacc catgtgtggc caagtgagat cagccctcaa gggcacatgc    1680
caagggcaga gcagcccatg tagacagctt cggagggcat gggggtgtag ggagttcggg    1740
gtagctcctc attaactatt tgttgggtga gtaaaggggt gaggctcagt ggcaggtacc    1800
tctgcaatga caagctgcct cccctctatg tgtttagcat atgttattag aacatgtccg    1860
acacccctac cgctgccatt tgggcccttt aataaagcca agtagagaaa tctggcaata    1920
aaaggcaaat gtaagcatgc tttctttaag acgcatcata aatggttttc tttaagtgaa    1980
tggaagagtt tgacagagat acacctttgt aagaaaacat taagaatgct ggctggctgt    2040
ggtggctcac acctgtattc ccagcacttt gggaggccta ggcaggagga ttgcttgagc    2100
ctgggacttc gagaccagac tgggaaacat ggcaaaatcc catctctaca acaaaaatac    2160
aaaaattagc caagtgcggt ggtgtgcctg tagtcctagt tacttgggag gctgaggtgg    2220
gagaatcacc tgagcccagg aggtggaggc tgcagtgagc catgccaatg cactccagtc    2280
tgggcaacag agtgagaccc tgtctcaaaa ataaataaat aaataaatga ataaagagaa    2340
tgctaatcca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa                 2388
```

tq65c10.x1 NCI_CGAP_Lu19 Homo sapiens cDNA clone IMAGE:2213682 3' similar to SW:ENPL_HUMAN P14625 ENDOPLASMIN PRECURSOR ;, mRNA sequence.

```
ttttttttcc tctactgcag cttcatcatc agattcttct ttctcttctt tggctgcttc      60
ttcttcctcc atgggctcct caacagtttc agtcttgctg ctccatacat aaataggaaa     120
gtttatgaac tgtgaatatt tttttgacga gatttttaat tgtatccaat tcaaggtaat     180
cagatgcttc ttcttttaag acaagggtaa ttgtcgttcc ccgtcctaga gtgtttcctc     240
ttgggtcagc aattacagaa aattcattgg agtcagactc ccagatgtgc tgagtatcgt     300
tgttgtgttt tgaagtgaca ataaccttat ctgctacaag gaaggcggaa tagaaaccga     360
caccaaactg gccaatcaat tcagaagttg actggccatc ttcctgtgct tcagtcattt     420
tgtttaaaaa ctcgcttgtc ccagatttgg ctatggtacc aaggttttta accaactctt     480
ctcggtcatt cctacaccgn tgtctgtgac atgcagcagg ttcttctcct tatcacactt     540
aattttgact tgtagttcct catttccaga aagagcattt tcatcagtca gtgatattag     600
ccttatctta tctaaagcat caaaagcaat tgaaatcagt tctctcaaga aaatctcttt     660
atttttatac aggaattggt gataggttca tcattctggt aactccgctt ggaaggcaac     720
ttttccgact ctctctaagt ctctaattgg gagcattaaa tcatcaactg atagcttctt     780
ctttctcgga ctacttcata tcccggcctt gactttctta cttttcccca aacccttttc     840
ttgcccatcc cataacttaa ttgcagcttg accgaccgaa gtaanaggac ccaaaggccc     900
aacccccagg ccccttttggg tgcgggcgaa attaatacct ctaatcaggg ccccccttggc   960
caatttgccc gggccaaatc ttattgggggg ttaaaaaaaa attttattgt ttggggaaag   1020
ttcccccatc cccaaaaacc ccggaaaagg gaaggggggc gttaggggaa caatattggc    1080
tcctccctcn cccaaaancc ccgcctatta aaacccggga gggaaangtn ttccctctcc    1140
tctcaccccn c                                                         1151
```

Homo sapiens phosphoserine aminotransferase (PSA) mRNA, complete cds.

```
ccttggctga ctcaccgccc tcgccgccgc accatggacg cccccaggca ggtggtcaac      60
tttgggcctg gtcccgccaa gctgccgcac tcagtgttgt tagagataca aaaggaatta     120
ttagactaca aaggagttgg cattagtgtt cttgaaatga gtcacaggtc atcagatttt     180
gccaagatta ttaacaatac agagaatctt gtgcgggaat tgctagctgt tccagacaac     240
tataaggtga tttttctgca aggaggtggg tgcggccagt tcagtgctgt ccccttaaac     300
ctcattggct tgaaagcagg aaggtgtgcg gactatgtgg tgacaggagc ttggtcagct     360
aaggccgcag aagaagccaa gaagtttggg actataaata tcgttcaccc taaacttggg     420
agttatacaa aaattccaga tccaagcacc tggaacctca acccagatgc ctcctacgtg     480
tattattgcg caaatgagac ggtgcatggt gtggagtttg actttatacc cgatgtcaag     540
ggagcagtac tggtttgtga catgtcctca aacttcctgt ccaagccagt ggatgtttcc     600
aagtttggtg tgatttttgc tggtgcccag aagaatgttg gctctgctgg ggtcaccgtg     660
gtgattgtcc gtgatgacct gctggggttt gccctccgag agtgcccctc ggtcctggaa     720
tacaaggtgc aggctggaaa cagctccttg tacaacacgc ctccatgttt cagcatctac     780
gtcatgggct tggttctgga gtggattaaa aacaatggag gtgccgcggc catggagaag     840
cttagctcca tcaaatctca aacaatttat gagattattg ataattctca aggattctac     900
gtgtctgtgg gaggcatccg ggcctctctg tataatgctg tcacaattga agacgttcag     960
aagctggccg ccttcatgaa aaaatttttg gagatgcatc agctatgaac acatcctaac    1020
caggatatac tctgttcttg aacaacatac aaagtttaaa gtaac                    1065
```

Homo sapiens cDNA clone:ADBAPE04, 5'end, expressed in human adrenal gland.

aaagaaactg gttggtttta agaaaatagt ttcaagaagt tcaactatat tcttttagat 60
attatgtatt gttttactct gattaggtta ctgtgatagg catttattca tattctttct 120
ataccactgt cattaatata ttaaaaagat gtatgtgtta gactatcgaa agggccttat 180
tctctctttc tcatagactg accttctttt ggaatttctg agtcatttat tttccttagc 240
tttttccact caaattaagg gcaagcgaaa aagtaataat tcggcattct ttaagcctac 300
agaatgtgat tctttcactt ggttattaca ctggctcgtg gacagaacat tttgaaaagt 360
gaaagattta ttttggtaaa agattttgct ttacttttcg aagcattatt cttttaaaga 420
gtggtttact tcaacgattg aaacattttc ctattaaaat ttcattgtta gaatcacagg 480
agcgcaaaaa tggaacggtt gattgaaatn tactctttct gtgaagaaaa tcacagagtt 540
gttgcctcgt tgtagttggt gggccccgta gcatggatgc ctttgccaat gggttcatgt 600
gccacacaaa gcaaacagat ctgcatcgat cgcaatttct tgtgaacacg gattgcatgt 660
ccatatccct ttgcaggatt taaaatattt aaaatggcct gccttgagtg cgatgagcca 720
acttgcctac tggactccac ctgggtgacc aat 753

wd68f02.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2336763 3', mRNA sequence.

tttctgtaca atacacattt attgagcact agatatatgc catgctagat gcaggtgacc 60
cagagcatca aggagcaata gtctggtggc agagacacac acaatgtcac tgtgatgtat 120
taaagcagtc agcaatagat gcagctcagg gcactgtggg gatatccaga ggcacagtac 180
cttctgcctg tcagtcaggg agggagagga gcacaggctg aaggagactg gaagacagca 240
gttggcctct gatagtggga ctggagagag atttctaagg gccacttctt gttttcaggg 300
actaggttgg gctagatatg gggctcagga tggacaaggc ttagagccag gttggagaag 360
atgaaagagc attactagag gagtggggag gcctaggcta tgctctttac tctgccattg 420
actgcgtgat cttgggcagg ccatgtaacc tctcagggct gtgcactccc ttatttgtaa 480
aactagaggg ctgggccagc atgtttt 507

H.sapiens LU gene for Lutheran blood group glycoprotein.

```
agtctccgcc gccgccgtga acatggagcc cccggacgca ccggcccagg cgcgcggggc      60
cccgcggctg ctgttgctcg cagtcctgct ggcggcgcac ccagatgccc aggcggaggt     120
gcgcttgtct gtacccccgc tggtggaggt gatgcgagga aagtctgtca ttctggactg     180
cacccctacg ggaacccacg accattatat gctggaatgg ttccttaccg accgctcggg     240
agctcgcccc cgcctagcct cggctgagat gcagggctct gagctccagg tcacaatgca     300
cgacacccgg ggccgcagtc ccccatacca gctggactcc caggggcgcc tggtgctggc     360
tgaggcccag gtgggcgacg agcgagacta cgtgtgcgtg gtgagggcag gggcggcagg     420
cactgctgag gccactgcgc ggctcaacgt gtttgcaaag ccagaggcca ctgaggtctc     480
ccccaacaaa gggacactgt ctgtgatgga ggactctgcc caggagatcg ccacctgcaa     540
cagccggaac gggaacccgg cccccaagat cacgtggtat cgcaacgggc agcgcctgga     600
ggtgcccgta gagatgaacc cagagggcta catgaccagc cgcacggtcc gggaggcctc     660
gggcctgctc tccctcacca gcaccctcta cctgcggctc cgcaaggatg accgagacgc     720
cagcttccac tgcgccgccc actacagcct gcccgagggc cgccacggcc gcctggacag     780
ccccaccttc cacctcaccc tgcactatcc cacggagcac gtgcagttct gggtgggcag     840
cccgtccacc ccagcaggct gggtacgcga gggtgacact gtccagctgc tctgccgggg     900
ggacggcagc cccagcccgg agtatacgct tttccgcctt caggatgagc aggaggaagt     960
gctgaatgtg aatctcgagg ggaacttgac cctggaggga gtgacccggg gccagagcgg    1020
gacctatggc tgcagagtgg aggattacga cgcggcagat gacgtgcagc tctccaagac    1080
gctggagctg cgcgtggcct atctggaccc cctggagctc agcgagggga aggtgctttc    1140
cttacctcta aacagcagtg cagtcgtgaa ctgctccgtg cacggcctgc ccacccctgc    1200
cctacgctgg accaaggact ccactccccc gggcgatggc cccatgctgt cgctcagttc    1260
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cctcagccgc acccagaact tcacgctgct ggtccaaggc tcgccagagc taaagacagc    1380
ggaaatagag cccaaggcag atggcagctg gagggaagga gacgaagtca cactcatctg    1440
ctctgcccgc ggccatccag accccaaact cagctggagc caattggggg gcagccccgc    1500
agagccaatc cccggacggc agggttgggt gagcagctct ctgaccctga aagtgaccag    1560
cgccctgagc cgcgatggca tctcctgtga agcctccaac ccccacggga acaagcgcca    1620
tgtcttccac ttcggcgccg tgagccccca gacctcccag gctggagtgg ccgtcatggc    1680
cgtggccgtc agcgtgggcc tcctgctcct cgtcgttgct gtcttctact gcgtgagacg    1740
caaagggggc ccctgctgcc gccagcggcg ggagaagggg gctccgccgc caggggagcc    1800
agggctgagc cactcggggt cggagcaacc agagcagacc ggccttctca tgggaggtgc    1860
ctccggagga gccaggggtg gcagcggggg cttcggagac gagtgctgag ccaagaacct    1920
cctagaggct gtccctggac ctggagctgc aggcatcaga gaaccagccc tgctcacgcc    1980
atgcccgccc ccgccttccc tcttccctct tccctctccc tgcccagccc tcccttcctt    2040
cctctgccgg caaggcaggg acccacagtg gctgcctgcc tccgggaggg aaggagaggg    2100
agggtgggtg ggtgggaggg ggccttcctc cagggaatgt gactctccca ggccccagaa    2160
tagctcctgg acccaagccc aaggcccagc ctgggacaag gctccgaggg tcggctggcc    2220
ggagctattt ttacctcccg cctcccctgc tggtcccccc acctgacgtc ttgctgcaga    2280
gtctgacact ggattcccca ccctcacccc gcccctggtc ccactcctgc ccccgcccta    2340
cctccgcccc accccatcat ctgtggacac tggagtctgg aataaatgct gtttgtcaca    2400
tc                                                                   2402
```

Homo sapiens mRNA for calmegin, complete cds.

```
cgccggcggg actggtctga agagacgcgg ggacaaagtg gcaacgactt ggacatctga      60
gctgtcactg ccgaaaacag gccgcaagag agataatcaa tatgcatttc caagcctttt     120
ggctatgttt gggtcttctg ttcatctcaa ttaatgcaga atttatggat gatgatgttg     180
agacggaaga ctttgaagaa aattcagaag aaattgatgt taatgaaagt gaactttcct     240
cagagattaa atataagaca cctcaaccta taggagaagt atattttgca gaaacttttg     300
atagtggaag gttggctgga tgggtcttat caaaagcaaa gaaagatgac atggatgagg     360
aaatttcaat atacgatgga agatgggaaa ttgaagagtt gaaagaaaac caggtacctg     420
gtgacagagg actggtatta aaatctagag caaagcatca tgcaatatct gctgtattag     480
caaaaccatt catttttgct gataaaccct tgatagttca atatgaagta aattttcaag     540
atggtattga ttgtggaggt gcatacatta aactcctagc agacactgat gatttgattc     600
tggaaaactt ttatgataaa acatcctata tcattatgtt tggaccagat aaatgtggag     660
aagattataa acttcatttt atcttcagac ataaacatcc caaaactgga gttttcgaag     720
agaaacatgc caaacctcca gatgtagacc ttaaaaagtt ctttacagac aggaagactc     780
atctttatac ccttgtgatg aatccagatg acacatttga ggtgttagtt gatcaaacag     840
ttgtaaacaa aggaagcctc ctagaggatg tggttcctcc tatcaaacct cccaaagaaa     900
ttgaagatcc caatgataaa aaacctgagg aatgggatga aagagcaaaa attcctgatc     960
cttctgccgt caaaccagaa gactgggatg aaagtgaacc tgcccaaata gaagattcaa    1020
gtgttgttaa acctgctggc tggcttgatg atgaaccaaa atttatccct gatcctaatg    1080
ctgaaaaacc tgatgactgg aatgaagaca cggatggaga atgggaggca cctcagattc    1140
ttaatccagc atgtcggatt gggtgtggtg agtggaaacc tcccatgata gataacccaa    1200
aatacaaagg agtatggaga cctccactgg tcgataatcc taactatcag ggaatctgga    1260
gtcctcgaaa aattcctaat ccagattatt tcgaagatga tcatccattt cttctgactt    1320
ctttcagtgc tcttggttta gagctttggt ctatgacctc tgatatctac tttgataatt    1380
ttattatctg ttcggaaaag gaagtagcag atcactgggc tgcagatggt tggagatgga    1440
aaataatgat agcaaatgct aataagcctg gtgtattaaa acagttaatg gcagctgctg    1500
aagggcaccc atggctttgg ttgatttatc ttgtgacagc aggagtgcca atagcattaa    1560
ttacttcatt ttgttggcca agaaaagtaa agaaaaaaca taaagataca gagtataaaa    1620
aaaccgacat atgtatacca caaacaaaag gagtactaga gcaagaagaa aaggaagaga    1680
aagcagccct ggaaaaacca atggacctgg aagaggaaaa aaagcaaaat gatggtgaaa    1740
tgcttgaaaa agaagaggaa agtgaacctg aggaaaagag tgaagaagaa attgaaatca    1800
tagaagggca agaagaaagt aatcaatcaa ataagtctgg gtcagaggat gagatgaaag    1860
aagcagatga gagcacagga tctggagatg ggccgataaa gtcagtacgc aaaagaagag    1920
tacgaaagga ctaaactaga ttgaaatatt tttaattccc gagaggatgt ttggcattgt    1980
aaaaatcagc atgccagacc tgaactttaa tcagtctgca catcctgttt ctaatatcta    2040
gcaacattat attctttcag acatttattt tagtccttca tttccgagga aaaagaagca    2100
actttgaagt tacctcatct ttgaatttag aataaaagtg gcacattaca tatcggatct    2160
aagagattaa taccattaga agttacacag ttttagttgt ttggagatag ttttggtttg    2220
tacagaacaa aataatatgt agcagcttca ttgctattgg aaaaatcagt tattggaatt    2280
tccacttaaa tggctataca acaatataac tggtagttct ataataaaaa tgagcatatg    2340
ttctgttgtg aagagctaaa tgcaataaag tttctgtatg gttgtttgat tctatcaaca    2400
attgaaagtg ttgtatatga cccacattta cctagtttgt gtcaaattat agttacagtg    2460
agttgtttgc ttaaattata gattccttta aggacatgcc ttgttcataa aatcactgga    2520
ttatattgca gcatatttta catttgaata caaggataat gggttttatc aaaacaaaat    2580
gatgtacaga ttttttttca agtttttata gttgctttat gccagagtgg tttaccccat    2640
tcacaaaatt tcttatgcat acattgctat tgaaaataaa atttaaatat tttttcatcc    2700
tgaaaaaaaa                                                           2710
```

wx78h04.x1 NCI_CGAP_Ov38 Homo sapiens cDNA clone IMAGE:2549815 3', mRNA sequence.

agcaatttga atcatttctt gaaaaacaaa cacagacaaa caccaaacat ggagttggtg 60
cccggcgccg ggcataaggg cagcacccca cgggtggctg tgcgggggge cgctgggtgt 120
ggccgggccc tgtgtgcctg tgcaggggcc cagctcctcg gggactggcc cacgaccccc 180
cactcagcgg gctgagccaa tgcctggccg agagggggcc gcagccagca ggcttgggtg 240
gctgcccgcg cccgcagggg acatcgggga aatgggggca gagtgcggga cccacacgct 300
gcctgaggag tcttggcagg gtggacaggc ctgggggtct ctaccagcaa tgcaataaat 360
atgcaaatcc aagcacagaa agaccaagcg cagaccccac gggcgcacga ggcccagccc 420
agttcctgcg ggcacgggca ccaccggctc ttcacagacc aggagt 466

Human CD9 antigen mRNA, complete cds.

```
cgcgcccccc agtcccgcac ccgttcggcc caggctaagt tagccctcac catgccggtc      60
aaaggaggca ccaagtgcat caaatacctg ctgttcggat ttaacttcat cttctggctt     120
gccgggattg ctgtccttgc cattggacta tggctccgat tcgactctca gaccaagagc     180
atcttcgagc aagaaactaa taataataat tccagcttct acacaggagt ctatattctg     240
atcggagccg gcgccctcat gatgctggtg ggcttcctgg gctgctgcgg ggctgtgcag     300
gagtcccagt gcatgctggg actgttcttc ggcttcctct tggtgatatt cgccattgaa     360
atagctgcgg ccatctgggg atattcccac aaggatgagg tgattaagga agtccaggag     420
ttttacaagg acacctacaa caagctgaaa accaaggatg agccccagcg ggaaacgctg     480
aaagccatcc actatgcgtt gaactgctgt ggtttggctg ggggcgtgga acagtttatc     540
tcagacatct gccccaagaa ggacgtactc gaaaccttca ccgtgaagtc ctgtcctgat     600
gccatcaaag aggtcttcga caataaattc cacatcatcg gcgcagtggg catcggcatt     660
gccgtggtca tgatatttgg catgatcttc agtatgatct tgtgctgtgc tatccgcagg     720
aaccgcgaga tggtctagag tcagcttaca tccctgagca ggaaagttta cccatgaaga     780
ttggtgggat tttttgtttg tttgttttgt tttgtttgtt gtttgttgtt tgttttttg      840
ccactaattt tagtattcat tctgcattgc tagataaaag ctgaagttac tttatgtttg     900
tcttttaatg cttcattcaa tattgacatt tgtagttgag cgggggggttt ggtttgcttg     960
gtttatattt ttcagttgtt tgtttttgct tgttatatta agcagaaatc ctgcaatgaa     1020
aggtactata tttgctagac tctagacaag atattgtaca taaaagaatt tttttgtctt     1080
taaatagata caaatgtcta tcaactttaa tcaagttgta acttatattg aagacaattt     1140
gatacataat aaaaaattat gacaatgaaa aaaaaaaaaa aaaaaaaaaa gg             1192
```

Homo sapiens cDNA clone:HEMBA1001328, 3' end, expressed in whole embryo,

```
gtagccttta tttacttaaa catttatttg cttctaggaa ataagcgctt tcctaatttc      60
aagcaattat aaaagaactg ctgttttctt ccacactcac ttgccagagg gtcgaattgg     120
aagtcacata tatgtctatg aacggaagtt aaaagggaaa ttcaacatga agatgaaatt     180
ctgaactttc ctagataaat taacattgct gggtggaaat attcagatgc tgcttaaata     240
cttcggtaaa cactgggtaa gattcatgga acttagaaaa aagctgtatg aactgcttta     300
ccaaatatca ctactgagga aatgtataaa ataccacata gtataaaatt acatgttaat     360
ccaatgccag attttaaata aaggacctta agttttcctc aaggggaag tttaatgggt      420
cnttcccgnt ntcanagggc caaaaanttc ccaaggaaac caggtagnaa gctcttnaaa     480
ggccgcaaaa t                                                          491
```

Homo sapiens 7-dehydrocholesterol reductase, mRNA (cDNA clone MGC:1760 IMAGE:3507516), complete cds.

```
gtggagcagc gcgcgcaagc gaggccaggg gaaggtgggc gcaggacttt agccggttga      60
gaaggatcaa gcaggcattt ggagcacagg tgtctagaaa cttttaaggg gccggttcaa     120
gaaggaaaag ttcccttctg ctgtgaaact atctggcaag aggctggagg gcccaatggc     180
tgcaaaatcg caacccaaca ttcccaaagc caagagtcta gatggcgtca ccaatgacag     240
aaccgcatct caagggcagt ggggccgtgc ctgggaggtg gactggtttt cactggcgag     300
cgtcatcttc ctactgctgt tcgccccctt catcgtctac tacttcatca tggcttgtga     360
ccagtacagc tgcgccctga ccggccctgt ggtggacatc gtcactggac atgctcggct     420
ctcggacatc tgggccaaga ctccacctat aacgaggaaa gccgcccagc tctatacctt     480
gtgggtcacc ttccaggtgc ttctgtacac gtctctccct gacttctgcc ataagtttct     540
acccggctac gtaggaggca tccaggaggg ggccgtgact cctgcagggg ttgtgaacaa     600
gtatcagatc aacggcctgc aagcctggct cctcacgcac ctgctctggt ttgcaaacgc     660
tcatctcctg tcctggttct cgcccaccat catcttcgac aactggatcc cactgctgtg     720
gtgcgccaac atccttggct atgccgtctc caccttcgcc atggtcaagg gctacttctt     780
ccccaccagc gccagagact gcaaattcac aggcaatttc ttttacaact acatgatggg     840
catcgagttt aaccctcgga tcgggaagtg gtttgacttc aagctgttct tcaatgggcg     900
ccccgggatc gtcgcctgga ccctcatcaa cctgtccttc gcagcgaagc agcgggagct     960
ccacagccat gtgaccaatg ccatggtcct ggtcaacgtc ctgcaggcca tctacgtgat    1020
tgacttcttc tggaacgaaa cctggtacct gaagaccatt gacatctgcc atgaccactt    1080
cgggtggtac ctgggctggg gcgactgtgt ctggctgcct tatctttaca cgctgcaggg    1140
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gctgggcctg gtgggctact acatcttccg ggtggccaac caccagaagg acctgttccg    1260
ccgcacggat gggcgctgcc tcatctgggg caggaagccc aaggtcatcg agtgctccta    1320
cacatccgcc gacgggcaga ggcaccacag caagctgctg gtgtcgggct tctggggcgt    1380
ggcccgccac ttcaactacg tcggcgacct gatgggcagc ctggcctact gcctggcctg    1440
tggcggcggc cacctgctgc cctacttcta catcatctac atggccatcc tgctgaccca    1500
ccgctgcctc cgggacgagc accgctgcgc cagcaagtac ggccgggact gggagcgcta    1560
caccgccgca gtgccttacc gcctgctgcc tggaatcttc taagggcacg ccctagggag    1620
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gtattgccag cacagacgga ttttctctaa tcagtgtccc tggggcagga ggatgaccca    1860
gtcaccttta ctagtccttt ggagacaatt tacctgtatt aggagcccag gccacgctac    1920
actctgccca cactggtgag caggaggtct tcccacgccc tgtcattagg ctgcatttac    1980
tcttgctaaa taaaagtggg agtggggcgt gcgcgttatc catgtattgc ctttcagctc    2040
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tggtagcgtg cacggtgttg aactgggaca ctggggagaa aggggctttc atgtcgtttc    2160
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gaggtcccag cactggctgt ggcctttcag gtgtaggcag gtgggctctg cttcccgatt    2280
ccctgtgagc gcccaccctc tcgaaagaat tttctgcttg ccctgtgact gtgcagactc    2340
tggctcgagc aacccgggga acttcaccct caggggcctc ccacaccttc tccagcgagg    2400
aggtctcagt cccagcctcg ggagggcacc tccttttctg tgctttcttc cctgaggcat    2460
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```
tcttcctcat ccctagggtg ttgtgtagaa ctctttttaa actctatgct ccgagtagag      2520
ttcatcttta tattaaactt cccctgttca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa      2580
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa                                  2614

Homo sapiens squalene epoxidase (ERG1) mRNA, complete cds.

ctggtctgat cggacttctc gtcctgggac acagtttact ggagtctggc cggctctccg        60
tgctcctctt ggtacctcat tttggggaga accttaaacc cactcgagca gataatctcc       120
gccttgaccg gtgccaccaa agaagccttg gaaccatgtg gacttttctg ggcattgcca       180
ctttcaccta tttttataag aagttcgggg acttcatcac tttggccaac agggaggtcc       240
tgttgtgcgt gctggtgttc ctctcgctgg gcctggtgct ctcctaccgc tgtcgccacc       300
gaaacggggg tctcctcggg cgccagcaga gcggctccca gttcgccctc ttctcggata       360
ttctctcagg cctgcctttc attggcttct tctgggccaa atccccccct gaatcagaaa       420
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taataggaac agctgcctgt acatcaacat cttctcagaa tgacccagaa gttatcatcg       540
tgggagctgg cgtgcttggc tctgctttgg cagctgtgct ttccagagat ggaagaaagg       600
tgacagtcat tgagagagac ttaaaagagc ctgacagaat agttggagaa ttcctgcagc       660
cgggtggtta tcatgttctc aaagaccttg gtcttggaga tacagtggaa ggtcttgatg       720
cccaggttgt aaatggttac atgattcatg atcaggaaag caaatcagag gttcagattc       780
cttaccctct gtcagaaaac aatcaagtgc agagtggaag agctttccat cacggaagat       840
tcatcatgag tctccggaaa gcagctatgg cagagcccaa tgcaaagttt attgaaggtg       900
ttgtgttaca gttattagag gaagatgatg ttgtgatggg agttcagtac aaggataaag       960
agactggaga tatcaaggaa ctccatgctc cactgactgt tgttgcagat gggcttttct      1020
ccaagttcag gaaaagcctg gtctccaata aagtttctgt atcatctcat tttgttggct      1080
ttcttatgaa gaatgcacca cagtttaaag caaatcatgc tgaacttatt ttagctaacc      1140
cgagtccagt tctcatctac cagatttcat ccagtgaaac tcgagtactt gttgacatta      1200
gaggagaaat gccaaggaat ttaagagaat acatggttga aaaaatttac ccacaaatac      1260
ctgatcacct gaaagaacca ttcttagaag ccactgacaa ttctcatctg aggtccatgc      1320
cagcaagctt ccttcctcct tcatcagtga agaaacgagg tgttcttctt ttgggagacg      1380
catataatat gaggcatcca cttactggtg gaggaatgac tgttgctttt aaagatataa      1440
aactatggag aaaactgcta aagggtatcc ctgaccttta tgatgatgca gctattttcg      1500
aggccaaaaa atcattttac tgggcaagaa aaacatctca ttcctttgtc gtgaatatcc      1560
ttgctcaggc tctttatgaa ttattttctg ccacagatga ttccctgcat caactaagaa      1620
aagcctgttt tctttatttc aaacttggtg gcgaatgtgt tgcgggtcct gttgggctgc      1680
tttctgtatt gtctcctaac cctctagttt taattggaca cttctttgct gttgcaatct      1740
atgccgtgta tttttgcttt aagtcagaac cttggattac aaaacctcga gcccttctca      1800
gtagtggtgc tgtattgtac aaagcgtgtt ctgtaatatt tcctctaatt tactcagaaa      1860
tgaagtatat ggttcattaa gcttaaaggg gaaccatttg tgaatgaata tttggaactt      1920
accaagtcct aagagacttt tggaagagga tatatatagc atagtaccat accacttata      1980
aagtggaaac tcttggacca agattaggat taatttgttt ttgaagtttt ttgtatataa      2040
atatgtaaat acatgcttta atttgcaatt taaaatgaag gggttaaata agttagacat      2100
ttaaaagaaa tgattgttac ataaattag tgctaatgct gaggagaact acagtttttc      2160
ttttgaattt agtatttgag atgagttgtt gggacatgc                            2199
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Homo sapiens keratin 23 (histone deacetylase inducible), transcript variant 1, mRNA (cDNA clone MGC:26158 IMAGE:4838347), complete cds.

aggggaaat cctgagcgca ggccagggtt gtttggtttt gaggtgtgct gggatgaaag 60
gcaccctgga agtggaaggt aaatgagcaa tggaaaaact tcacggcaag attagaaaga 120
tacctgagcc caatacccgc ctgatgtcgt gggccacacc tccgggttac caggggaagg 180
gaggaagcaa actgtcatat tgatgtggct ctaaacaaca acagtgtgcg aaggcccagg 240
ggcactttgg gattgaccaa gaggaaacac aagttgcaca atgatacaat cttgttggta 300
caattgtcag agaagggaac tcccacagca aaggccataa aaccatccag ggcagtctgg 360
ggcggctcag ttctgcggtg ccagggagtg gagcagagct cagccccgtc ccaaacacag 420
atgggaccat gaactccgga cacagcttca gccagacccc ctcggcctcc ttccatggcg 480
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cttggggttc tggaagaagc agcccctac taggcggaaa tgggaaggcc accatgcaga 660
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agactcagaa acttttattt ttttttctg taactgtctc accagacttc tcataatgct 1860
cttaatatat tgcacttttc taatcaaagt gcgagtttat gagggtaaag ctctactttc 1920
ctactgcagc cttcagattc tcatcatttt gcatctattt tgtagccaat aaaactccgc 1980
actagcaaaa aaaaaaaaaa aa 2002

Homo sapiens translocon-associated protein gamma subunit mRNA, complete cds.

```
cctttgcccg cttggcggcc ggctctacgt tccctgttct cgcctgcagc tccgccatgg      60
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gcaatctctc ggccaagtcc tccgcgctct tcttcggaaa cgcgttcatc gtgtctgcca     180
tccccatctg gttatactgg cgaatatggc atatggatct tattcagtct gctgttttgt     240
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gaaaactttc tgaagctgat aatagaaaga tgtctcggaa ggagaaagat gaaagaatct     420
tgtggaagaa gaatgaagtt gctgattatg aagctacaac attttccatc ttctataaca     480
acactctgtt cctggtcgtg gtcattgttg cttccttctt catattgaag aacttcaacc     540
ccacagtgaa ctacatattg tccataagtg cttcatcagg actcatcgcc ctcctgtcta     600
ctggctccaa atagaccatg tcagcttcac cccctggctt tgtgtctatg ggtggcctgt     660
ggtatatgga aaagtagcag ggtggtcagg gtgggagaca caagatgttt ttatagtcta     720
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cacaccctgg aggaatgtta agtaagagaa agaacctctt tcctgaatat tgacatgtaa    1440
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tgattttagt gcttgtcagc atttttccat gaggactttc atacatttga ctctttagtt    1560
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cctaatcttt actatccact tctaaattta atgtgaattt catacatgtt attagttgtt    1860
ttctttataa ttttataaaa attattcatc gggagtttaa cttccacttc catgctatcg    1920
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taaactgaag atttgtagga aaatgagtga gcaaaatttg tttactgttg tgaatttttc    2760
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ctgtgtggca cacagagatg cgacctactc aatctgactt agtaaaacca tgctgtagaa    3000
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a                                                                    3061
```

Homo sapiens malic enzyme 1, NADP(+)-dependent, cytosolic, mRNA (cDNA clone MGC:39115 IMAGE:4870714), complete cds.

```
gtcaccccag cagcatccgc cgcctgcacc gcgcgtgcgg cccgccccgg cctgaccccg      60
ccgccgaacc cggcgccagc catggagccc gaagcccccc gtcgccgcca cacccatcag     120
cgcggctacc tgctgacacg gaaccctcac ctcaacaagg acttggcctt taccctggaa     180
gagagacagc aattgaacat tcatggattg ttgccacctt ccttcaacag tcaggagatc     240
caggttctta gagtagtaaa aaatttcgag catctgaact ctgactttga caggtatctt     300
ctcttaatgg atctccaaga tagaaatgaa aaactctttt atagagtgct gacatctgac     360
attgagaaat tcatgcctat tgtttatact cccactgtgg gtctggcttg ccaacaatat     420
agtttggtgt ttcggaagcc aagaggtctc tttattacta tccacgatcg agggcatatt     480
gcttcagttc tcaatgcatg gccagaagat gtcatcaagg ccattgtggt gactgatgga     540
gagcgtattc ttggcttggg agaccttggc tgtaatggaa tgggcatccc tgtgggtaaa     600
ttggctctat atacagcttg cggagggatg aatcctcaag aatgtctgcc tgtcattctg     660
gatgtgggaa ccgaaaatga ggagttactt aaagatccac tctacattgg actacggcag     720
agaagagtaa gaggttctga atatgatgat tttttggacg aattcatgga ggcagtttct     780
tccaagtatg gcatgaattg cattattcag tttgaagatt ttgccaatgt gaatgcattt     840
cgtctcctga acaagtatcg aaaccagtat tgcacattca atgatgatat tcaaggaaca     900
gcatctgttg cagttgcagg tctccttgca gctcttcgaa taaccaagaa caaactgtct     960
gatcaaacaa tactattcca aggagctgga gaggctgccc tagggattgc acacctgatt    1020
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ttggaagagg gtcggcttta tcctcctttg aataccatta gagatgtttc tctgaaaatt    1620
gcagaaaaga ttgtgaaaga tgcataccaa gaaaagacag ccacagttta tcctgaaccg    1680
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cctgattgtt attcttggcc tgaagaggtg cagaaaatac agaccaaagt tgaccagtag    1800
gataatagca aacatttcta actctattaa tgaggtcttt aaacctttca taatttttaa    1860
aggttggaat cttttataat gattcataag acacttagat taagatttta ctttaacagt    1920
ctaaaaattg atagaagaat atcgatataa attgggataa acatcacatg agacaaaaaa    1980
aaaaaaaaaa aa                                                        1992
```

Homo sapiens livin inhibitor-of-apotosis (LIVIN) mRNA, complete cds.

```
ccctgggata ctcccctccc agggtgtctg gtggcaggcc tgtgcctatc cctgctgtcc    60
ccagggtggg ccccgggggt caggagctcc agaagggcca gctgggcata ttctgagatt   120
ggccatcagc ccccatttct gctgcaaacc tggtcagagc cagtgttccc tccatgggac   180
ctaaagacag tgccaagtgc ctgcaccgtg gaccacagcc gagccactgg gcagccggtg   240
atggtcccac gcaggagcgc tgtggacccc gctctctggg cagccctgtc ctaggcctgg   300
acacctgcag agcctgggac cacgtggatg ggcagatcct gggccagctg cggcccctga   360
cagaggagga agaggaggag ggcgccgggg ccaccttgtc caggggggct gccttccccg   420
gcatgggctc tgaggagttg cgtctggcct ccttctatga ctggccgctg actgctgagg   480
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ccatcgtctt tgtgccgtgc ggccacctgg tctgtgctga gtgtgccccc ggcctgcagc   960
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cctgattccc cgaccaccgc ccagggtgga gaaggaggcc cttgcttggc gtgggggatg  1200
gcttaactgt acctgtttgg atgcttctga atagaaataa agtgggtttt ccctggaggt  1260
```

Homo sapiens drebrin 1, transcript variant 1, mRNA (cDNA clone MGC:1517 IMAGE:3356428), complete cds.

```
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caccgcctgg agctgctggc ggcttacgag gaggtgatcc gagaggagag cgcggccgac     180
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aaaaaaaaaa aaa                                                       2593
```

Homo sapiens MDS019 (MDS019) mRNA, complete cds.

```
ctgccagggg gagggcccca gagaaaacca gaaagagggt gagagactga ggaagataaa      60
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ggccctggga ggtcacttta gggagggctg tcctaaaacc agaagcttgg agcagaaagt     180
gaaaccctgg tgctccagac aaagatctta gtcgggacta gccggccaag gatgaagcct     240
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ctttgaatca aaaatttatt tatatttcaa gaataaagta ctaagattgt gctcaataca    1620
cagaaaagtt tcaaacctac taatccagcg acaatttgaa tcggttttgt aggtagagga    1680
ataaaatgaa atactaaatc tttctgtaaa aaaaaaa                              1717
```

Human carnitine palmitoyltransferase I mRNA, nuclear gene encoding mitochondrial protein, complete cds.

```
ccgcgcaccc atctgccccc gtcctaggtg ccgaccaacc cccaggatgg cggaagctca      60
ccaggccgtg gccttccagt tcacggtgac cccagacggg gtcgacttcc ggctcagtcg     120
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Homo sapiens prostate differentiation factor mRNA, complete cds.

```
agcgtttaaa cttaagcttg gagttatttc caccatgccc gggcaagaac tcaggacgct      60
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cctgtctctg gccgaggcga gccgcgcaag tttcccggga ccctcagagt tgcactccga     180
agactccaga ttccgagagt tgcggaaacg ctacgaggac ctgctaacca ggctgcgggc     240
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ccttcctgag gggctccccg aggcctcccg ccttcaccgg gctctgttcc ggctgtcccc     420
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caggggcgc cgcagagcgc gtgcgcgcaa cggggaccac tgtccgctcg ggcccgggcg     660
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gccagcgccc tgctgcgtgc ccgccagcta caatcccatg gtgctcattc aaaagaccga     900
caccggggtg tcgctccaga cctatgatga cttgttagcc aaagactgcc actgcatatg     960
aactagtact aagccgaatt ctgcagatat cc                                  992
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Homo sapiens amphiphysin II mRNA, complete cds.

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gggaaggcag atgagaccaa ggatgagcag tttgagcagt gcgtccagaa tttcaacaag 180
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cccgacatca agtcacgcat tgccaagcgg gggcgcaagc tggtggacta cgacagtgcc 480
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aggagacccc caggcagagg ggcgttctcc caaagattag gtcgttttcc aaagagccgc 1980
gtcccggcaa gtccggcg 1998

602149641F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4290707 5', mRNA sequence.

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ctagtggtaa ttttttttt tttaattccc acttgggcgt tggtgtacat tcaaatgaaa      180
tgagaagtgt gtatgctgac caaaccacaa gaaactttct ttaagtggtg ttaaagagga     240
aagacctaga atccaagcgg tgttacattg aaaatggtaa cagagcagcg tgcttccacc     300
tttcagatat agatgtggga accacagcag aagttataga gcgacaactt atatacacac     360
ctagaaggta agttaaacaa aataccggct tccagagacc ccttttctcc agccatatta     420
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cagacctgtg ttcgggtgaa cctcttaatt cctgagtctt taccaataca gttcctgggg     660
gcgcggggaa cgccttggat atgccaggtc agaaaggggg ctcgatatgg gttgcccagt     720
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Human global transcription activator homologous sequence mRNA, complete cds.

```
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gcgcctaaat ctgaaaagga aatggaccca gaatatgaag agaaaatgaa agccgaccga     180
gcaaagagat ttgaattttt actgaagcag acagaacttt ttgcacattt cattcagcct     240
tcagcacaga aatctccaac atctccactg aacatgaaat tgggacgtcc ccgaataaag     300
aaagatgaaa agcagagctt aatttctgct ggagactacc gccataggcg cacagagcaa     360
gaagaagatg aagagctact gtctgagagt cggaaaacat ctaatgtgtg tattagattt     420
gaggtgtcac cttcatatgt gaaaggggcg ccactgagag attatcagat tcgaggactg     480
aattggttga tctctttata tgaaaatgga gtcaatggca ttttggctga tgaaatgggc     540
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aattaaaatg ttttgaggag aaagaaaaaa aaaa 3634

tb60a01.x1 NCI_CGAP_Br15 Homo sapiens cDNA clone IMAGE:2058696 3' similar to gb:M84739 CALRETICULIN PRECURSOR (HUMAN);, mRNA sequence.

tatacggctg cgagaagacg acagaagggg acagaggcaa gaaaagatgt tgatcaagaa 60
agatgagaac caggggtgag ggctgaagga gaatcaaaga taaaatacca gtttaaaaaa 120
aaaaaaaaaa aaaaaaaagt cgtatcga 148

tu04d02:x1 NCI_CGAP_Pr28 Homo sapiens cDNA clone IMAGE:2250051 3', mRNA sequence.

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acttaaaaca 550

Homo sapiens mRNA for KIAA0895 protein, partial cds.

```
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gtttgcaaac ataaatccat agtcttcatt tctttatatt gtcacctttg taaaagtgtt      4080
taaaatttgt attgtttgtt ttgtatatct ttgggcatct tgtgtctagc tataataaaa      4140
agaaacggtg ccaag                                                      4155
```

Homo sapiens NUCB2 protein (NUCB2) mRNA, complete cds.

caggtttgtg cgctggacgc aagcaccagg cgcagcctcg ctcgccgaga cccggccaga 60
acgtgttacg agtcagtttt tagtgaaaaa acattgagct aggagccaag acccatctct 120
tcactatttt ggtattgtgc aagtcatctt acctctctgg atctcagttg tctcatctgt 180
aaaaaggaga taaaaattat ttacctgcct gaacatgagg tggaggacca tcctgctaca 240
gtattgcttt ctcttgatta catgtttact tactgctctt gaagctgtgc ctattgacat 300
agacaagaca aaagtacaaa atattcaccc tgtggaaagt gcgaagatag aaccaccaga 360
tactggactt tattatgatg aatatctcaa gcaagtgatt gatgtgctgg aaacagataa 420
acacttcaga gaaaagctcc agaaagcaga catagaggaa ataaagagtg ggaggctaag 480
caaagaactg gatttagtaa gtcaccatgt gaggacaaaa cttgatgaac tgaaaaggca 540
agaagtagga aggttaagaa tgttaattaa agctaagttg gattcccttc aagatatagg 600
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gtttgaatcc acagatttag atatgctaat caaagcggca acaagtgatc tggaacacta 720
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tcatcaggtc atacagcaga tggaacaaaa aaaattacaa ggaattcctc catcagggcc 1440
agctggagaa ttgaagtttg agccacacat ttaaagtctg aagtccacca gaacttggaa 1500
gaaa

Homo sapiens glucose-6-phosphate dehydrogenase, mRNA (cDNA clone MGC:8534 IMAGE:2822640), complete cds.

```
cacttcgggg ctgcgagcgc ggagggcgac gacgacgaag cgcagacagc gtcatggcag      60
agcaggtggc cctgagccgg acccaggtgt gcgggatcct gcgggaagag cttttccagg     120
gcgatgcctt ccatcagtcg gatacacaca tattcatcat catgggtgca tcgggtgacc     180
tggccaagaa gaagatctac cccaccatct ggtggctgtt ccgggatggc cttctgcccg     240
aaaacacctt catcgtgggc tatgcccgtt cccgcctcac agtggctgac atccgcaaac     300
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gccacatgaa tgccctccac ctggggtcac aggccaaccg cctcttctac ctggccttgc     480
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gctggaaccg catcatcgtg gagaagccct tcgggaggga cctgcagagc tctgaccggc     600
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atggccaccc cgtgccaccc gtaggcagcc tctctgctat aagaaaagca gacgcagcag    2160
ctgggacccc tcccaacctc aatgccctgc cattaaatcc gcaaacagcc aaaaaaaaaa    2220
aaaaaaaaaa                                                           2230
```

Homo sapiens zinc finger protein 165 (Zpf165) mRNA, complete cds.

ggtcccggat ccgcgcgggt ttggggatcc anatgtccag ccccgtgtcc ccctccaaac 60
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ctcagaggaa tcccgganaa aggtanaacc agcttcgcgt tgggaacgca ggcgcgctta 180
cgcatttagt gagggtttgg cggtctccat anttaccgcc gccgcgcgtg acntcatant 240
ggagcgctga gggcttggtg gcgtggggtg ggggctgtcc tactgatcct gaatttgggt 300
cactggtaan angagttgcc cattccancc aggtggaacg gggaggggta gccacatgtc 360
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agtcaacacc agagaattca catgagggaa aacctattaa tgtaaggaac ttaaatttgt 2040
aagtaaatgc tgaggaaatg gcacaatatg aaaaatatta aataaaaaat aaatattggg 2100
caagtggaag actgaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2150

602326096F1 NIH_MGC_90 Homo sapiens cDNA clone IMAGE:4414319 5', Mrna

```
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cacaggatag ataagaagat tggttaaaca gttttgtgta gatcttttg gtgctgaact      180
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atacgagaca aaaaaaaaaa aaaatgaaaa aaaataaaaa aaaaagagag ggggacagat     780
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aggggtataa atcggaaaaa tgtgtgtaag acaactgtgg agaaaac                   887
```

Human prostaglandin endoperoxide synthase mRNA, complete cds.

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tccccgtcct gctcgcggac ccaggggcgc ccacgccagt gaatccctgt tgttactatc 120
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attcacgcca ttggttggaa gctaccagag ctctatcccc atccaggtct tgactcatgg 2520
cagctgtttc tcatgaagct aataaaattc gccc 2554

Human mRNA for tyrosine hydroxylase type 3

```
tccacactga gccatgccca cccccgacgc caccacgcca caggccaagg gcttccgcag      60
ggccgtgtct gagctggacg ccaagcaggc agaggccatc atgggcgccc cggggcccag     120
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caccgtcaca ataaaagaaa ctgtggtctc t                                   1891
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Homo sapiens mRNA; cDNA DKFZp566A093 (from clone DKFZp566A093); complete

```
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ctgtggatga gggatgaaca aggggatggc tttgatccaa tggagcctgg gaggtgtgcc    1800
cagaaagctt gtctgtagcg ggttttgtga gagtgaacac tttccacttt ttgacacctt    1860
atcctgatgt atggttccag gatttggatt ttgattttcc aaatgtagct tgaaatttca    1920
ataaactttg ctctgttttt ctaaaaataa aaaaaaaaaa aaaaaaaa                1968
```

Homo sapiens mRNA for Id-1H, complete cds.

```
ttcagccagt cgccaagaat catgaaagtc gccagtggca gcaccgccac cgccgccgcg      60
ggccccacgt gcgcgctgaa ggccggcaag acagcgagcg gtgcgggcga ggtggtgcgc     120
tgtctgtctg agcagagcgt ggccatctcg cgctgccggg gcgccggggc gcgcctgcct     180
gccctgctgg acgagcagca ggtaaacgtg ctgctctacg acatgaacgg ctgttactca     240
cgcctcaagg agctggtgcc caccctgccc cagaaccgca aggtgagcaa ggtggagatt     300
ctccagcacg tcatcgacta catcagggac cttcagttgg agctgaactc ggaatccgaa     360
gttggaaccc ccgggggccg agggctgccg gtccgggctc cgctcagcac cctcaacggc     420
gagatcagcg ccctgacggc cgaggcggca tgcgtccctg cggacgatcg catcttgtgt     480
cgctgaaggc cttccccagg gaccggcgg                                       509
```

Homo sapiens mRNA for KIAA1254 protein, partial cds.

cattggcgcc cgagctgtga ccgccgccac tggggcagcc agcacaatcg ggcggaggtg 60
gcgctgcccc ttcagacctg aaagatgtct gaaaattcca gtgacagtga ttcatcttgt 120
ggttggactg tcatcagtca tgaggggtca gatatagaaa tgttgaattc tgtgaccccc 180
actgacagct gtgagcccgc cccagaatgt tcatctttag agcaagagga gcttcaagca 240
ttgcagatag agcaaggaga aagcagccaa aatggcacag tgcttatgga agaaactgct 300
tatccagctt tggaggaaac cagctcaaca attgaggcag aggaacaaaa gatacccgaa 360
gacagtatct atattggaac tgccagtgat gattctgata ttgttaccct tgagccacct 420
aagttagaag aaattggaaa tcaagaagtt gtcattgttg aagaagcaca gagttcagaa 480
gactttaaca tgggctcttc ctctagcagc cagtatactt tctgtcagcc agaaactgta 540
ttttcatctc agcctagtga tgatgaatca agtagtgatg aaaccagtaa tcagcccagt 600
cctgccttta gacgacgccg tgctaggaag aagaccgttt ctgcttcaga atctgaagac 660
cggctagttg gtgaacaaga aactgaacct tctaaggagt tgagtaaacg tcagttcagt 720
agtggtctca ataagtgtgt tatacttgct ttggtgattg caatcagcat gggatttggc 780
catttctatg gcacaattca gattcagaag cgtcaacagt tagtcagaaa gatacatgaa 840
gatgaattga atgatatgaa ggattatctt tcccagtgtc aacaggaaca agaatctttt 900
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tccctggaga aggaagaaaa agccttatcc tcattacagg aagagttaaa caaactaaga 1080
gaacagatta gaatattgga agataaaggg acaagtactg aattagttaa agaaaatcag 1140
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ggaagccaca gggctaaaaa taagtcaaag gaaacatttt tgggttcagt taaggaaaca 1560
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cagtataagg cacctacaga aaaccatcat aatagaggcc ctactatgca aaatgatgga 1860
aggaaagaaa agccagttca ctttaaagaa ttcagaaaaa atacaaattc aaagaaatgc 1920
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tttgattgtg ctcaacaaga gtccatgagc ctttttaaca cagtggtgaa tcctataagg 2040
atggatgaat ttagacagat aattcaaagg tacatgttaa aagaactgga tacttttgt 2100
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aatgtgtcta taaaataatg agactgattc tggtgtcttt agttattaag ctggtatcta 3060
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ctgtctggag gtgtttggaa aggcttcttg agtgaggtgg cctttgaact gaacttagtt 3240

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gctggaggat aagagatgca gaccatgaag ggccccattt tatgctaaag gttttgtcct 3420
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tttagattac agtagtcccc ccttatcttc aggatatatg ttccaagacc cccagtggat 3540
gctggaaacc agggatagaa cataattcta tatatactat gcatgaattt ctttttcctt 3600
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tggaaacaca tctcattatt ttattgtcac atttcttttc tttgttatct tttgagtgtt 5220
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aagcaacgta tggtaaatat tgaaaactcc aggcatcgaa aacaagagca gaagcacctt 5520
cagccacagc cttataaaag ggaaggtaaa tggcataaat atggtcgcac taatggaaga 5580
caaatggcaa atcttgaaat agaattgggg caattacctt ttgatcctca atactgattc 5640
acaattgagt taaattagac aactgtaaga gaaaaattta tgctttgtat aatgtttggt 5700
attgaaacta atgaaattac caagatgaca atgtcttttc ttttgtttct aagtatcagt 5760
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gcttaaagca agctcagtca tacatgacaa agtgtaatta acactgatgt ttgtgttaaa 6000
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tcttacactc acttcttgtc tttttgtggg ttcaagagcc ctctgacttg tgaagaattt 6120
gctgccctct taagagcttg ctgacttgtt ttcttgtgaa atttttgca catctgaata 6180
tcgtggaaga aacaataaaa ctacaccatg agg                            6213
```

Homo sapiens cDNA clone:HEMBA1001328, 3' end, expressed in whole embryo, ainly head.

gtagccttta tttacttaaa catttatttg cttctaggaa ataagcgctt tcctaatttc 60
aagcaattat aaaagaactg ctgttttctt ccacactcac ttgccagagg gtcgaattgg 120
aagtcacata tatgtctatg aacggaagtt aaaagggaaa ttcaacatga agatgaaatt 180
ctgaactttc ctagataaat taacattgct gggtggaaat attcagatgc tgcttaaata 240
cttcggtaaa cactgggtaa gattcatgga acttagaaaa aagctgtatg aactgcttta 300
ccaaatatca ctactgagga aatgtataaa ataccacata gtataaaatt acatgttaat 360
ccaatgccag attttaaata aaggacctta agttttcctc aaggggggaag tttaatgggt 420
cnttcccgnt ntcanagggc caaaaanttc ccaaggaaac caggtagnaa gctcttnaaa 480
ggccgcaaaa t 491

Homo sapiens mRNA; cDNA DKFZp564F1862 (from clone DKFZp564F1862); complete cds

```
gaggcttctg aggtggtggc gccagcggct acctcctgcc tgtgaggagc tggctgagag      60
gggactgggc gccggcgggg aaggaggagc gctaggtcgg tgtacgaccg agattagggt     120
gcgtgccagc tccgggaggc cgcggtgagg ggccgggccc aagctgccga cccgagccga     180
tcgtcagggt cgccagcgcc tcagctctgt ggaggagcag cagtagtcgg agggtgcagg     240
atattagaaa tggctactcc ccagtcaatt ttcatctttg caatctgcat tttaatgata     300
acagaattaa ttctggcctc aaaaagctac tatgatatct taggtgtgcc aaaatcggca     360
tcagagcgcc aaatcaagaa ggcctttcac aagttggcca tgaagtacca ccctgacaaa     420
aataagagcc cagatgctga agcaaaattc agagagattg cagaagcata tgaaacactc     480
tcagatgcta atagacgaaa agagtatgat acacttggac acagtgcttt tactagtggt     540
aaaggacaaa gaggtagtgg aagttctttt gagcagtcat ttaacttcaa ttttgatgac     600
ttatttaaag actttggctt ttttggtcaa aaccaaaaca ctggatccaa gaagcgtttt     660
gaaaatcatt tccagacacg ccaggatggt ggttccagta gacaaaggca tcatttccaa     720
gaattttctt ttggaggtgg attatttgat gacatgtttg aagatatgga gaaaatgttt     780
tcttttagtg gttttgactc taccaatcag catacagtac agactgaaaa tagatttcat     840
ggatctagca agcactgcag gactgtcact caacgaagag gaaatatggt tactacatac     900
actgactgtt caggacagta gttcttattc tattctcact aaatccaact ggttgactct     960
tcctcattat ctttgatgct aaacaatttt ctgtgaacta ttttgacaag tgcatgattt    1020
cactttaaac aatttgatat agctattaag tatatttaag ggtttttttt ttttgacaaa    1080
ttcaacattc aacgagtaga caaaatgcta attatttccc tgattaggaa agtttcttta    1140
aaaaacacgt aattttgcct agtgcttttt ctctacctgc ccttgggctc actaatatca    1200
ccagtattat taccaagaaa atattgagtt tacctgatta aactttaaaa gttaattgta    1260
gatttaaatt gtgtgaacct aatgattttt gcagtgaaac ctttactaat tcaaagttgc    1320
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atttttaaat cctgagaaat gtgtgctttt gttttcggat agacttattt ctttagttct    1860
gcacttttcc acattatact ccatatgagt attaatccta tggatacata ttaaaacaag    1920
tgtctcatac aacattgtat gtgagagaaa tataaatatt tacaacctaa aaaaaaaaaa    1980
aaaaaaa
```

Homo sapiens peroxisomal D3,D2-enoyl-CoA isomerase, mRNA (cDNA clone MGC:3558 IMAGE:3608151), complete cds.

```
gagccgccca agggatggcg atggcgtact tggcttggag actggcgcgg cgttcgtgtc      60
cgagttctct gcaggtcact agtttcccgg tagttcagct gcacatgaat agaacagcaa     120
tgagagccag tcagaaggac tttgaaaatt caatgaatca agtgaaactc ttgaaaaagg     180
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cttgtaacat gcccaaacca ggtgtatttg acttgatcaa caaggccaaa tgggacgcat     300
ggaatgccct tggcagcctg cccaaggaag ctgccaggca gaactatgtg gatttggtgt     360
ccagtttgag tccttcattg gaatcctcta gtcaggtgga gcctggaaca gacaggaaat     420
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accggcccaa aaagaaaaat gccataaaca ctgagatgta tcatgaaatt atgcgtgcac     540
ttaaagctgc cagcaaggat gactcaatca tcactgtttt aacaggaaat ggtgactatt     600
acagtagtgg gaatgatctg actaacttca ctgatattcc ccctggtgga gtagaggaga     660
aagctaaaaa taatgccgtt ttactgaggg aatttgtggg ctgttttata gattttccta     720
agcctctgat tgcagtggtc aatggtccag ctgtgggcat ctccgtcacc ctccttgggc     780
tattcgatgc cgtgtatgca tctgacaggg caacatttca tacaccattt agtcacctag     840
gccaaagtcc ggaaggatgc tcctcttaca cttttccgaa gataatgagc ccagccaagg     900
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agagagaaaa actacacgct gttaatgctg aagaatgcaa tgtccttcag ggaagatggc    1140
tatcagatga atgcacaaat gctgtggtga acttcttatc cagaaaatca aaactgtgat    1200
gaccactaca gcagagtaaa gcatgtccaa ggaaggatgt gctgttacct ctgatttcca    1260
gtactggaac taaataagct tcattgtgcc ttttgtagtg ctagaatatc aattacaatg    1320
atgatatttc actacagctc tgatgaataa aaagttttgt aaaacaaaaa aaaaaaaaaa    1380
aaa                                                                 1383
```

Homo sapiens annexin A1, mRNA (cDNA clone MGC:5095 IMAGE:3459615), complete cds.

atttctcttt agttctttgc aagaaggtag agataaagac acttttttcaa aaatggcaat 60
ggtatcagaa ttcctcaagc aggcctggtt tattgaaaat gaagagcagg aatatgttca 120
aactgtgaag tcatccaaag gtggtcccgg atcagcggtg agcccctatc ctaccttcaa 180
tccatcctcg gatgtcgctg ccttgcataa ggccataatg gttaaaggtg tggatgaagc 240
aaccatcatt gacattctaa ctaagcgaaa caatgcacag cgtcaacaga tcaaagcagc 300
atatctccag gaaacaggaa agcccctgga tgaaacactg aagaaagccc ttacaggtca 360
ccttgaggag gttgttttag ctctgctaaa aactccagcg caatttgatg ctgatgaact 420
tcgtgctgcc atgaagggcc ttggaactga tgaagatact ctaattgaga ttttggcatc 480
aagaactaac aaagaaatca gagacattaa cagggtctac agagaggaac tgaagagaga 540
tctggccaaa gacataacct cagacacatc tggagatttt cggaacgctt tgctttctct 600
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cagggccttg tatgaagcag gagaaaggag aaaggggaca gacgtaaacg tgttcaatac 720
catccttacc accagaagct atccacaact tcgcagagtg tttcagaaat acaccaagta 780
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tcaagccatg aaaggtgttg gaactcgcca taaggcattg atcaggatta tggtttcccg 960
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ttgccaagcc atcctggatg aaaccaaagg agattatgag aaaatcctgg tggctctttg 1080
tggaggaaac taaacattcc cttgatggtc tcaagctatg atcagaagac tttaattata 1140
tattttcatc ctataagctt aaataggaaa gtttcttcaa caggattaca gtgtagctac 1200
ctacatgctg aaaaatatag cctttaaatc atttttatat tataactctg tataatagag 1260
ataagtccat tttttaaaaa tgttttcccc aaaccataaa accctataca agttgttcta 1320
gtaacaatac atgagaaaga tgtctatgta gctgaaaata aaatgacgtc acaagacaaa 1380
aaaaaaaaaa aaaaaaaaaa aaaaaaaa 1408

Homo sapiens RTN2-A (RTN2) mRNA, complete cds.

```
cccgggagga ggaggcggcg agaatggcag cggcgtcgtg ggcgcggcgg agatgagcgc      60
ccgcgacccc gggcccaggg cggcacagcc ggagtgggcg ggggtcccga tgcaggcccg     120
agggggccca tggggcaggt cctgccggtc ttcgcccact gcaaagaagc tccgtctaca     180
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cacacagccc gggaattctc agaggaggac gaggaggaga ccacgtcgca ggactggggc     300
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agcacggacc aattagaatt cacggtggag ccacgccttc taggaacagc tatggaatgg     960
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cctctgtgga cagccattgg ctgggtccaa aggggcccca ccccccctac tcctgtcctc    1080
cgggttctac tgaagtgggc aaaatccccg agaagcagcg gtgtccccag cctctcactc    1140
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cgcaaagtgc tgcaggccgt gcaccggggg gatggagcca acccttttcca ggcctacctg    1380
gatgtggacc tcaccctgac tcgggagcag acggaacgtt tgtcccacca gatcacctcc    1440
cgcgtggtct cggcggccac gcagctgcgg cacttcttcc tggtagaaga cctcgtggat    1500
tccctcaagc tggccctcct cttctacatc ttgaccttcg tgggtgccat cttcaatggt    1560
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gctaagatcc gagctaaaat cccagggacc ggagccctgg cctctgcagc agccgcagtc    1740
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cagcccccgc agccctctgg ccccctccat ctcttgtccg ttcccaccca ccccctcct     1860
cggcccgagc cttttcccgg tgggtgtcag gatcactccc actagggact ctgcgctaat    1920
tacctgagcg accaggacta catttcccaa gaggctctgc tccaggagtc caggaaagac    1980
gaggcacctt ggccgcgggg cctgctggga cttgtagttg cctagacagg gcaccaccct    2040
gcacttccgg acccgccgct ggaggcgccg tgaggcgttg gtgtctcctg gatgctacta    2100
gccccaacgc cggggctttg catggggccc aggggaggcc tgagcttgga tttacactgt    2160
aataaagact cctgtggaaa aaaaaaaaaa                                     2190
```

Homo sapiens kallikrein 8 (neuropsin/ovasin), transcript variant 1, mRNA (cDNA clone MGC:50513 IMAGE:5742016), complete cds.

```
cgcccctcgt gatgtcaggg gcgcagtagc tccgcccacg tggagctcgg gcggtgtaga      60
gctcagcccc ttgtggcccc gtcctgggcg tgtgctgggt ttgaatcctg gcggagacct     120
gggggggaaat tgagggaggg tctggatacc tttagagcca atgcaacgga tgatttttca    180
gtaaacgcgg gaaacctcac cttctttctg cctgagctgt gagatgagtg gagagcaaac     240
gggtgggcgg tgaagggcag atgagggaac cggtaccgcc ttgcaactcc cccttaaacc     300
cctatgttcc agttcccaga agctccccag gctctagtgc aggaggagaa ggaggaggag     360
caggaggtgg agattcccag ttaaaaggct ccagaatcgt gtaccaggca gagaactgaa     420
gtactggggc ctcctccact gggtccgaat cagtaggtga ccccgccccc ggattctgga     480
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tgagtgccaa ccccattcgc agccttggca ggcggccttg ttccagggcc agcaactact     660
ctgtggcggt gtccttgtag gtggcaactg ggtccttaca gctgcccact gtaaaaaacc     720
gaaatacaca gtacgcctgg gagaccacag cctacagaat aaagatggcc cagagcaaga     780
aatacctgtg gttcagtcca tcccacaccc ctgctacaac agcagcgatg tggaggacca     840
caaccatgat ctgatgcttc ttcaactgcg tgaccaggca tccctggggt ccaaagtgaa     900
gcccatcagc ctggcagatc attgcaccca gcctggccag aagtgcaccg tctcaggctg     960
gggcactgtc accagtcccc gagagaattt tcctgacact ctcaactgtg cagaagtaaa    1020
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caaacctggc gtctatacca acatctgccg ctacctggac tggatcaaga agatcatagg    1260
cagcaagggc tgattctagg ataagcacta gatctccctt aataaactca caactctcaa    1320
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa       1377
```

Human mRNA for KIAA0188 gene, partial cds.

```
ccacgcgcgg cgccgctcgg tgcagaccat gaattacgtg gggcagttag ccggccaggt      60
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tgacatcatt gtcatccgcc agcccaatgg aaacctccaa tgctcccctt tccacgtccg     180
ctttgggaag atgggggtcc tgcgctcccg agagaaagtg gttgacatag aaatcaatgg     240
ggaatctgtg gatttgcata tgaaattggg agataatgga gaagcatttt ttgttcaaga     300
aacagataat gatcaggaag ttatccctat gcacctggcc acctcccccа tcctgtcaga     360
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catggagctg ctggagagca gcagaactct tcctaatgat atacctccat tccaagatga     660
tattcctgag gaaaacctct ccctggctgt gatttaccct cagtcagcct catacсctaa     720
ttcggataga gagtggtcac ccactcccag tccttccggt tcccgacctt caacacctaa     780
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cagcgaatct tcagacactt ttagtgacca atcgccaact ctggtcggtg gggcactttt    1020
ggaccagaac aagcctcaga cagaaatgca gtttgtgaat gaagaagacc tggagacctt    1080
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```

```
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caatgataaa aatcactgta atacttcatt gtgttgtact ggatgcaaag ctagaaaata   5280
ttgcaataaa tgagaccgat gaaagac                                      5307
```

Homo sapiens 3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble), mRNA (cDNA clone IMAGE:2819708), partial cds.

```
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cctttgaatg cagaagcttg ctggccaaaa gatgtgggaa ttgttgccct tgagatctat     180
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ggaaatgcta gacctacagg tggagttgga gcagtagctc tgctaattgg gccaaatgct     660
cctttaattt ttgaacgagg gcttcgtggg acacatatgc aacatgccta tgatttttac     720
aagcctgata tgctatctga atatcctata gtagatggaa aactctccat acagtgctac     780
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ccatattgta aactggttca gaaatctcta gctcggatgt tgctgaatga cttccttaat     960
gaccagaata gagataaaaa tagtatctat agtggcctgg aagcctttgg ggatgttaaa    1020
ttagaagaca cctactttga tagagatgtg gagaaggcat ttatgaaggc tagctctgaa    1080
ctcttcagtc agaaaacaaa ggcatcttta cttgtatcaa atcaaaatgg aaatatgtac    1140
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gattcactct ttgaaggaac gtggtactta gttagggtgg atgaaaagca cagaagaact    1500
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catgtaaaaa aaaaaaaaaa aaaaaaaa                                       2068
```

Homo sapiens S100 calcium binding protein A14, mRNA (cDNA clone MGC:11012 IMAGE:3640899), complete cds.

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aattcagtga tgtggagagg gccattgaga ccctcatcaa gaactttcac cagtactccg 180
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gcaatgactc taaactggag ttcaggagtt tctgggagct gattggagaa gcggccaaga 360
gtgtgaagct ggagaggcct gtccgggggc actgagaact ccctctggaa ttcttggggg 420
gtgttgggga gagactgtgg gcctggaaat aaaacttgtc tcctctacaa aaaaaaaaaa 480
aaaaaaaaa 489

Homo sapiens cDNA clone:ADBALE09, 5'end, expressed in human adrenal gland.

aaaatatcat ggattgaacc tcatcaattg atagcagtga gtgactgaag cttccaaatc 60
aagaaaagcc ggcaccaaga acttccattc taatctagag ctgaccagtt tgagctgatt 120
ctctctttga agagtccttc ttgattgcag tgcagtactg gcatttctga atggatgtaa 180
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tatcttgaaa ctttgtgaac tgacttgctg tatttgcact ttgagctctt gaaataaatg 360
tgatttttgt gtgattaaaa caaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 420
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aactcgctcg ggccgaattg ggcacgagcc 480
acccaccacc tttggcacag ccccttgtt tttacaccaa taccaagaat taaggggaa 540
gccttggcag ttttcacgtt taaaccagac tcctttgccg gaacccaacc cgncaccctg 600
ctggcctccg tc 612

as43b01.x1 Barstead aorta HPLRB6 Homo sapiens cDNA clone IMAGE:2319913 3', mRNA sequence.

```
tttaaaaaac aaactgcaaa atggtattta tttacattaa aacatgaatt gcctgtatac      60
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tacacagcag tatctgttaa gtcagtggtt tgagtgaaaa cacagtacca aaacattcct     180
gatacaaaat aagttactca ttcacatatt ctaatcatac aagacactta atattttaaa     240
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tgaaaagact tcagattgtt attcataaat gatccctttc aggatgcatt atcttttaaa     360
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ccaaatccaa cactgtcatt ctaattgcaa atagaattta ttaaattcca cttcaggaca     540
tgagatgagc tgcctgccct attttgtcaa tggttccaaa gcattaacgg attaagagac     600
tgc                                                                   603
```

Homo sapiens drebrin 1, transcript variant 1, mRNA (cDNA clone MGC:1517 IMAGE:3356428), complete cds.

```
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caataaatgg ctcgtgggct ctggcaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa    2580
aaaaaaaaaa aaa                                                       2593
```

Homo sapiens potentially prenylated protein tyrosine phosphatase hPRL-3 mRNA, complete cds.

```
aagagttggg ttttcttttt taattatcca aacagtgggc agcttcctcc cccacaccca      60
agtatttgca caatatttgt gcggggtatg ggggtgggtt tttaaatctc gtttctcttg     120
gacaagcaca gggatctcgt tctcctcatt ttttgggggt gtgtggggac ttctcaggtc     180
gtgtccccag ccttctctgc agtcccttct gccctgccgg gcccgtcggg aggcgccatg     240
gctcggatga accgcccggc cccggtggag gtgagctaca aacacatgcg cttcctcatc     300
acccacaacc ccaccaacgc cacgctcagc accttcattg aggacctgaa gaagtacggg     360
gctaccactg tggtgcgtgt gtgtgaagtg acctatgaca aaacgccgct ggagaaggat     420
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gaagactggc tgagcctggt gaaggccaag ttctgtgagg cccccggcag ctgcgtggct     540
gtgcactgcg tggcgggcct ggggcgggct ccagtccttg tggcgctggc gcttattgag     600
agcgggatga agtacgagga cgccatccag ttcatccgcc agaagcgccg cggacgcatc     660
aacagcaagc agctcaccta cctggagaaa taccggccca aacagaggct gcggttcaaa     720
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cagcccagca gggctccagg ccttggctgg ccccacatcg ccttttcctc cccgacacct     900
ccgtgcactt gtgtccgagg agcgaggagc ccctcggcgc cttgggtggc ttctgggccc     960
tttctcctgt ctccgtactc cctctggcgg cgctggcgtg gctctg                   1006
```

Homo sapiens cell cycle progression restoration 8 protein (CPR8) mRNA, complete cds.

```
gaattcgcaa agatgctaaa gagagaactg gagagagaac gactagtaac tacggcttta      60
agggggaac tccagcagtt aagtggtagt cagttacatg gcaagtcaga ttctcccaat      120
gtatatactg aaaaaaagga aatagcaatc ttacgggaaa gactcactga gctggaacgg      180
aagctaacct tcgaacagca gcgttctgat ttgtgggaaa gattgtatgt tgaggcaaaa      240
gatcaaaatg gaaaacaagg aacagatgga aaaaagaaag ggggcagagg aagccacagg      300
gttaaaaata agtcaaaggg aacatttttg ggttcagtta aggaaacatt tgatgccatg      360
aagaattcta ccaaggagtt tgtaaggcat cataaagaga aaattaagca ggctaaagaa      420
gatgtgaagg aaaatctgaa aaaattctca gattcagtta aatccacttt cagacacttt      480
aaagatacca ccaagaatat ctttgatgaa aagggtaata aaagatttaa tgctacaaaa      540
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cctacagaaa accattcaag gccctactat gcaaaaagat ggaaggaaga aaagccagtt      660
cactttaaag aattcagaaa aaatacaaat tcaaagaaat gcagtcctgg gcatgattgt      720
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cagttcatca ataagttttt cctaaacggt gtctttatac atgatcagaa gctcttcact      960
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```

Human channel-like integral membrane protein (CHIP28) mRNA, complete cds.

```
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agctcttctg gagggcagtg gtggccgagt tcctggccac gaccctcttt gtcttcatca      120
gcatcggttc tgccctgggc ttcaaatacc cggtggggaa caaccagacg gcggtccagg      180
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ttttcctaac atgcaccttg ctcccaatgg tgcttggagg gggaagagat cccaggaggt 1320
gcagtggagg gggcaagctt 1340

Homo sapiens STRA6 isoform 1 mRNA, complete cds, alternatively spliced.

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 2732

Homo sapiens solute carrier family 7 (cationic amino acid transporter

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601440558F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3925214 5', mRNA sequence.

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Human DNA for insulin-like growth factor II (IGF-2); exon 7 and additional ORF

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acccagcgcc tgcgcagggg cctgcctgcc ctcctgcgtg cccgccgggg tcacgtgctc 120
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nac79g07.x1 NCI_CGAP_Brn23 Homo sapiens cDNA clone IMAGE:3440820 3', mRNA sequence.

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caggggcccc ctcacttggg cgcggagccc tgggagtgga ga 522

Homo sapiens hypothetical protein MGC11256, mRNA (cDNA clone MGC:60219 IMAGE:6091291), complete cds.

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tctgtgtgtg tcctgacggc ttcgaaggaa cggaagatgc ctgtgtgccg ccggcagagg    1080
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```

Homo sapiens cDNA clone IMAGE:3952627, partial cds.

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PT1.1_07_C06.r tumor1 Homo sapiens cDNA 5', mRNA sequence.

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Homo sapiens cDNA FLJ12940 fis, clone NT2RP2005038, weakly similar to DNA NUCLEOTIDYLEXOTRANSFERASE (EC 2.7.7.31).

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np60h03.s1 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1130741 3', mRNA sequence.

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```

Homo sapiens ALL1-fused gene from chromosome 1q, mRNA (cDNA clone IMAGE:2823316).

```
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Human mRNA for acetyl-coenzyme A transporter, complete cds.

```
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```

Homo sapiens SDF2L1 mRNA for SDF2 like protein 1, complete cds.

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gcgggtcccc ggtgcgctgc gggcaggcgg tgaggctcac gcatgtgctt acgggcaaga 360
acctgcacac gcaccacttc ccgtcgccgc tgtccaacaa ccaggaggtg agtgcctttg 420
gggaagacgg cgagggcgac gacctggacc tatggacagt gcgctgctct ggacagcact 480
gggagcgtga ggctgctgtg cgcttacagc atgtgggcac ctctgtgttc ctgtcagtca 540
cgggtgagca gtatggaagc cccatccgtg ggcagcatga ggtccacggc atgcccagtg 600
ccaacacgca caatacgtgg aaggccatgg aaggcatctt catcaagcct agtgtggagc 660
cctctgcagg tcacgatgaa ctctgagtgt gtggatggat gggtggatgg agggtggcag 720
gtggggcgtc tgcagggcca ctcttggcag agactttggg tttgtagggg tcctcaagtg 780
cctttgtgat taaagaatgt tggtctatga 810

Homo sapiens RTN2-A (RTN2) mRNA, complete cds.

```
cccgggagga ggaggcggcg agaatggcag cggcgtcgtg ggcgcggcgg agatgagcgc      60
ccgcgacccc gggcccaggg cggcacagcc ggagtgggcg ggggtcccga tgcaggcccg     120
agggggggca tggggcaggt cctgccggtc ttcgcccact gcaaagaagc tccgtctaca     180
gcctcctcaa ctcctgattc cacagaagga gggaacgacg actctgattt tcgagagctg     240
cacacagccc gggaattctc agaggaggac gaggaggaga ccacgtcgca ggactggggc     300
acccccggg agctgacctt ctcctacatc gcctttgatg gtgtagtggg ctccgggggc     360
cgcagggatt caactgcccg ccgcccccgc ccccagggcc gctcagtctc ggaaccacga     420
gaccagcacc ctcagcccag cctgggcgac agcttggaga gcatccccag cctgagccaa     480
tccccggagc ctggacgacg gggtgatcct gacaccgcgc ctccatccga gcgccctctg     540
gaagacctga ggcttcggtt ggaccatctg ggctgggtgg cccggggaac gggatccggg     600
gaggactctt ccaccagcag ctccaccccg ctggaagacg aagaacccca agaacccaac     660
agattggaga caggagaagc tggggaagaa ctggacctac gactccgact tgctcagccc     720
tcatcgcccg aggtcttgac tccccagctc agtccgggct ctgggacacc ccaggccggt     780
actccgtccc catcccgatc gcgagattcg aactctgggc ccgaagagcc attgctggaa     840
gaggaagaaa agcagtgggg gccactggag cgagagccag taaggggaca gtgcctcgat     900
agcacggacc aattagaatt cacggtggag ccacgccttc taggaacagc tatggaatgg     960
ttaaagacat cattgctttt ggctgtttac aagacggttc caattttgga attgtcccca    1020
cctctgtgga cagccattgg ctgggtccaa aggggcccca ccccccctac tcctgtcctc    1080
cgggttctac tgaagtgggc aaaatccccg agaagcagcg gtgtccccag cctctcactc    1140
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ggagtggtct tcacaggcct gatggtctcc ctcctctgcc tcctgcactt tagcatcgtg    1260
tccgtggccg cgcacttggc tctgttgctg ctctgcggca ccatctctct cagggtttac    1320
cgcaaagtgc tgcaggccgt gcaccggggg gatggagcca acccttttcca ggcctacctg    1380
gatgtggacc tcaccctgac tcgggagcag acggaacgtt tgtcccacca gatcacctcc    1440
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tccctcaagc tggccctcct cttctacatc ttgaccttcg tgggtgccat cttcaatggt    1560
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caccaggctc agatcgacca atatgtgggg ttggtgacca atcagttgag ccacatcaaa    1680
gctaagatcc gagctaaaat cccagggacc ggagccctgg cctctgcagc agccgcagtc    1740
tccggatcca aagccaaagc cgaatgagaa cggtgtctct gcccgcagga cgcctgcccc    1800
cagcccccgc agccctctgg ccccctccat ctcttgtccg ttcccaccca ccccctcct     1860
cggcccgagc cttttcccgg tgggtgtcag gatcactccc actagggact ctgcgctaat    1920
tacctgagcg accaggacta catttcccaa gaggctctgc tccaggagtc caggaaagac    1980
gaggcacctt ggccgcgggg cctgctggga cttgtagttg cctagacagg gcaccaccct    2040
gcacttccgg acccgccgct ggaggcgccg tgaggcgttg gtgtctcctg gatgctacta    2100
gccccaacgc cggggctttg catggggccc aggggaggcc tgagcttgga tttacactgt    2160
aataaagact cctgtggaaa aaaaaaaaaa                                     2190
```

Homo sapiens cDNA: FLJ22209 fis, clone HRC01496.

cgatgatgag gctgaagaaa aggaagacaa agaagaagaa aaagaaaaag aagagaaaga 60
gtcggaagac aaacctgaaa ttgaagatgt tggttctgat gaagaagaag aaaagaaacc 120
aaagactaaa aaagttgaaa aaactgtctg ggactgggaa cttatgaatg atatcgttca 180
taaactttcc tatttatgta tggagcagca agactgaaac tgttgaggag cccatggagg 240
aagaagaagc agccaaagaa gagaaagaag aatctgatga tgaagctgca gtagaggaag 300
aagaagaaga aaagaaacca aagactaaaa aagttgaaaa aactgtctgg gactgggaac 360
ttatgaatga tatcgttcat aaactttcct atttatgtat ggagcagcaa gactgaaact 420
gttgaggagc ccatggagga agaagaagca gccaaagaag agaaagaaga atctgatgat 480
gaagctgcag tagaggaaga agaagaagaa aagaaaccaa agactaaaaa agttgaaaaa 540
actgtctggg actgggaact tatgaatgat atcgttcata aactttccta tttatgtatg 600
gagcagcaag actgaaactg ttgaggagcc catggaggaa gaagaagcag ccaaagaaga 660
gaaagaagaa tctgatgatg aagctgcagt agaggaagaa gaagaagaaa agaaaccaaa 720
gactaaaaaa gttgaaaaaa ctgtctggga ctgggaactt atgaatgata tcgttcataa 780
actttcctat ttatgtatgg agcagcaaga ctgaaactgt tgaggagccc atggaggaag 840
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aagaagaaaa gaaaccaaag actaaaaaag ttgaaaaaac tgtctgggac tgggaactta 960
tgaatgatat cgttcataaa ctttcctatt tatgtatgga gcagcaagac tgaaactgtt 1020
gaggagccca tggaggaaga agaagcagcc aaagaagaga aagaagaatc tgatgatgaa 1080
gctgcagtag aggaagaaga agaagaaaag aaaccaaaga ctaaaaaagt tgaaaaaact 1140
gtctgggact gggaacttat gaatgatatc gttcataaac tttcctattt atgtatggag 1200
cggcaagact gaaactgttg aggagcccat ggaggaagaa gaagcagcca aagaagagaa 1260
agaagaatct gatgatgaag ctgcagtaga ggaagaagaa gaagaaaaga aaccaaagac 1320
taaaaaagtt gaaaaaactg tctgggactg ggaacttatg aatgatatcg ttcataaact 1380
ttcctattta tgtatggagc agcaagactg aaactgttga ggagcccatg gaggaagaag 1440
aagcagccaa agaagagaaa gaagaatctg atgatgaagc tgcagtagag gaagaagaag 1500
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gagcccatgg aggaagaaga agcagccaaa gaagagaaag aagaatctga tgatgaagct 1680
gcagtagagg aagaagaaga agaaaagaaa ccaaagacta aaaaagttga aaaaactgtc 1740
tgggactggg aacttatgaa tgatatcgtt cataaacttt cctatttatg tatggagcag 1800
caagactgaa actgttgagg agcccatgga ggaagaagaa gcagccaaag aagagaaaga 1860
agaatctgat gatgaagctg cagtagagga agaagaagaa gaaaagaaac caaagactaa 1920
aaaagttgaa aaaactgtct gggactggga acttatgaat gatatcgttc ataaactttc 1980
ctatttatgt atggagcagc aagactgaaa ctgttgagga gcccatggag gaagaagaag 2040
cagccaaaga agagaaagaa gaatctgatg atgaagctgc agtagaggaa aaaaaaaaaa 2100

Homo sapiens UDP-N-acetylglucosamine-2-epimerase mRNA, complete cds.

```
cggcgtctgg aactctattt tagaacctct caaaacgaaa caagcaaatc atggagaaga      60
atggaaataa ccgaaagctg cgggtttgtg ttgctacttg taaccgtgca gattattcta     120
aacttgcccc gatcatgttt ggcattaaaa ccgaacctga gttctttgaa cttgatgttg     180
tggtacttgg ctctcacctg atagatgact atggaaatac atatcgaatg attgaacaag     240
atgactttga cattaacacc aggctacaca caattgtgag gggagaagat gaggcagcca     300
tggtggagtc agtaggcctg gccctagtga agctgccaga tgtccttaat cgcctgaagc     360
ctgatatcat gattgttcat ggagacaggt ttgatgccct ggctctggcc acatctgctg     420
ccttgatgaa catccgaatc cttcacattg aaggtgggga agtcagtggg accattgatg     480
actctatcag acatgccata acaaaactgg ctcattatca tgtgtgctgc acccgcagtg     540
cagagcagca cctgatatcc atgtgtgagg accatgatcg catccttttg gcaggctgcc     600
cttcctatga caaacttctc tcagccaaga acaaagacta catgagcatc attcgcatgt     660
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ctgacattaa gcattccata aaaatgtttg aattaacatt ggatgcactt atctcattta     780
acaagcggac cctagtcctg tttccaaata ttgacgcagg gagcaaagag atggttcgag     840
tgatgcggaa gaagggcatt gagcatcatc ccaactttcg tgcagttaaa cacgtcccat     900
ttgaccagtt tatacagttg gttgcccatg ctggctgtat gattgggaac agcagctgtg     960
gggttcgaga agttggagct tttggaacac ctgtgatcaa cctgggaaca cgtcagattg    1020
gaagagaaac aggggagaat gttcttcatg tccgggatgc tgacacccaa gacaaaatat    1080
tgcaagcact gcaccttcag tttggtaaac agtacccttg ttcaaagata tatggggatg    1140
gaaatgctgt tccaaggatt ttgaagtttc tcaaatctat cgatcttcaa gagccactgc    1200
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tcagcatgaa gggtgaaata gttaagaagt atactcagtt caatcctaaa acctatgaag    1380
agaggattaa tttaatccta cagatgtgtg tggaagctgc agcagaagct gtaaaactga    1440
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cagctggaac agctttgggt cttggggttg tgaacatcct ccataccatg aatccctccc    2040
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gccagcaggc cttgtcctcc gtgcaggacg tggatgtggt ggtttcggat ttggttgacc    2160
ccgccctgct gggtgctgcc agcatggttc tggactacac aacacgcagg atctactaga    2220
cctccaggaa cagacatgga ccttctctcc agagctccgt agtggaatca agttcttgtc    2280
tttaggagta gcctttctta acaatcaaat ctgtattgaa ctgacggtga ctttggcaga    2340
gaatgtttca cttttgtctc ctcttccaga gtcaccttcc ccactcta                 2388
```

Homo sapiens carcinoembryonic antigen 2a (CGM2) mRNA, complete cds.

```
gccatgggtt ccccttcagc ctgtccatac agagtgtgca ttccctggca ggggctcctg      60
ctcacagcct cgcttttaac cttctggaac ctgccaaaca gtgcccagac caatattgat     120
ggtgtgccgt tcaatgtcgc agaagggaag gaggtccttc tagtagtcca taatgagtcc     180
cagaatcttt atggctacaa ctggtacaaa gggcaaaggg tgcatgccaa ctatcgaatt     240
ataggatatg taaaaaatat aagtcaagaa aatgccccag ggcccgcaca caacggtcga     300
gagacaatat accccaatgg aaccctgctg atccagaacg tcacccacaa tgacgcagga     360
ttctataccc tacacgttat aaaagaaaat cttgtgaatg aagaagtaac cagacaattc     420
tacgtattct cggagccacc caagccctcc atcaccagca acaacttcaa tccggtggag     480
aacaaagata ttgtggtttt aacctgtcaa cctgagactc agaacacaac ctacctgtgg     540
tgggtaaaca atcagagcct cctggtcagt cccaggctgc tgctctccac tgacaacagg     600
accctcgttc tactcagcgc cacaaagaat gacataggac cctatgaatg tgaaatacag     660
aacccagtag gtgccagccg cagtgaccca gtcaccctga atgtctgcta tgagtcagta     720
caagcaagtt cacctgacct ctcagctggg accgctgtca gcatcatgat tggagtactg     780
gctgggatgg ctctgatata gcag                                            804
```

yh42a11.r1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:132380 5', mRNA sequence.

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ggtttttaca agagtaacac atttaaattt acagaggtaa gaatttcctt ggagaaatag      60
gtgctggtga taataggagt atctttcttt tccatatcaa cataattata ataaataact     120
cacagattta aaggcttatt ttgtgccagg cattctgctg agtgctttac atacatgtct     180
catgtaatcc tcccaacagc tctgcaggga caggagttta tgattatctt gattttatag     240
gaataggtaa tgtaatgctc agagagggtt aaacatctgg gttaggtcac acaggctaat     300
ccaatactta ggttttaagg ttttgaggac tgggggtgcn gtgggctcca cggcctgtaa     360
tccccnggca ctttgggggа ggcntaggcc gggnccggtc cccggggtcn ggggtcccng     420
gcccctccgg                                                           430
```

Homo sapiens immediate early response 3, transcript variant short, mRNA

```
ctccgctcgg ctcaccatgt gtcactctcg cagctgccac ccgaccatga ccatcctgca      60
ggccccgacc ccggcccccc ccaccatccc gggaccccgg cggggctccg gtcctgagat     120
cttcaccttc gaccctctcc cggagcccgc agcggccccc gccgggcgcc ccagcgcctc     180
tcgcgggcac cgaaagcgca gccgcagggt tctctaccct cgagtggtcc ggcgccagct     240
gccagtcgag gaaccgaacc cagccaaaag gcttctcttt ctgctgctca ccatcgtctt     300
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taacgccgca tccctggcgc ccacccctgt gtcccccgtc ctcgagccct ttaatctgac     420
ttcggagccc tcggactacg ctctggacct cagcactttc ctccagcaac acccggccgc     480
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aggcgtacct ggtgcgcgag agcgtatccc caactgggac ttccgaggca acttgaactc     600
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tcgttaattt atttcttatt gctcctaatt aatatttata tgtatttatg tacgtcctcc     780
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cgtcccggct gggatgaagt ctggtggtgg gtcgtaagtt taggaggtga ctgcatcctc    1020
cagcatctca actccgtctg tctactgtgt gagacttcgg cggaccatta ggaatgagat    1080
ccgtgagatc cttccatctt cttgaagtcg cctttagggt ggctgcgagg tagagggttg    1140
ggggttggtg ggctgtcacg gagcgactgt cgagatcgcc tagtatgttc tgtgaacaca    1200
aataaaattg atttactgtc tgcaaaaaaa aaaaaaaa                            1238
```

7f03b12.x1 NCI_CGAP_CLL1 Homo sapiens cDNA clone IMAGE:3293567 3', mRNA sequence.

ggtatttact tagctatgat aaagaataaa aagtcattta aaaaacgcga taggacagat 60
aacagactca caacgtattt agatttaaac actgctggtc tacgtaacct gttacaaaag 120
agagcaaaac ctaactgtca gcatagacat taaagctcac cgttgattat agctcagggc 180
ctgctcagca ttgtttaaaa agggtcactc acagttttgt caaagagtgc tggtgttctc 240
tatgaactca taaactgttt tatctgaaaa ggtgattttc taagtagtgt aagccatggg 300
tacatggtgc aaaaagttca tgttctcact cagctggtga gcgaaggatg ggagcagaga 360
acagagctaa aacccctggt tttcctttcc ccagatgtaa agcctgctag ctggaactca 420
cagaagattg gaacaaaaag ataggagatg gacacctgng ggactgctcc agcacgaagg 480
gaagcgatga gcatcacaca gcag 504

human full-length cDNA 3-PRIME end of clone CS0DA009YG15 of NEUROBLASTOMA of Homo sapiens (human)

```
ttttttttt atttytttaw cacttccaat aaactagcat aagttttatt acaacatata      60
cagatttgat acagtttaca aaaaaaacta gatttttcaa ctaaataaaa atgtctttta     120
ascmvtkvaa gttggcttag agacatggta tttttctttc aaaactgtgt ttctacaatg     180
atttctaagg tcccagtctt gcttgtactt gacagtyacc ctcatctaag caacattaag     240
akctctgata tctttagtaa agaatacaaa accctgtktt tcttaaaawc ctaatgctga     300
aagayatgtt atagccaatc cagacaaaca tttatattta aacatttata tttaaacaaa     360
angyctctct gaacaaatag cctgcbgaga taaatacagt gatttgtttt cctgatagaa     420
ctatttagca tgtttaacac attattctgt agtttgggaa taagagtgtt tcttcccttg     480
aagaaaacag gtccccttct gaagaataat gctgattacc ccccaaaatc aaaatagacc     540
agcaccaaat gaagtattaa tttacaaaca tgaacttaga acttagctct tacttcttga     600
agttctacat cccagactta ataaattaac tacaaaatca ggagtttcat cagctacagt     660
ataatttaaa aatccatttt caactggcag gagtgaggga gaaggtcaat tgcactgatc     720
accatgaact tcaagaattt catcaaaact tttttcccag cttatatttg ccttcagagg     780
tgagctgtag attaccatct ctgatgcttt aacatacaat attcttgttg aaatctcttc     840
aaagagcaca gcatgtaaag cactaaactg tgttcagatc tgaggagtct gcatggaaag     900
acctgagacc tctctgaaga gccaaaaaca agtggctgtc tcagtgatmc atctattcat     960
cctcacaaga catgcattga gctttttat tcacagattt atgttagtcc ttagacccat    1020
gccatgtcca gttcagactg tcggctatca ggygtcttct tgtgcactcy tggagtctgt    1080
aattgwytcg actgtgtgat mtgtrctttg amarwgtctg cgccatgtgc atagtgacat    1140
cccagcatac gkccmcmcaw tcggcastgc ggctttcccg gwtwctttct gcctkaacca    1200
g                                                                    1201
```

602288121F1 NIH_MGC_97 Homo sapiens cDNA clone IMAGE:4373861 5', mRNA sequence.

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acgggaggcc tctaaatctt tagttggggc tgcattgccc tggagccgca ctcttgagtc 180
cgaggccatc ttttgttgga gaaggcgtcg gcgttggcgt ttcccgagg ttgggctgta 240
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ccttccggcc gctgctcgcc gtcgccagag gctaggccac gtttccccca gtgccgaggt 360
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ctcagggaac accatcaaaa aagaacaaaa agggaatatc tggatttcct gggcgaggag 540
gagcgagtct gctcgggagc tgttccagca ggcgattttt aaatactggt ttctacgccc 600
tatacaactt ggcttcacat acttttacaa cttaaccttt ttatgatttt aaaaaactgg 660
tctgttccgg gacttctccg gccgggacac cgggtaacgg aggtctggcc gggctcccgg 720
cggcccttgg gacctcactt gtgggaacct taacccatcg agacagaaat ccggtgacgg 780
cgccaagaag ctggaccagg ggcttcggcg tcgaccacac ctgttagagc cggaccatgg 840
cccgagccgc ggcggggccc cggaggccac aggccaaggc gggcgaggca gcgctcgaaa 900
acacggtgac cccaagaggg agaagccact agcgcagaag ggaan 945

Homo sapiens organic anion transporter polypeptide-related protein 1 (OATPRP1) mRNA, complete cds.

```
ggcacgaggc gctgcgcggc gcggcggccg ggccctcgag acggggacgg acacaccagc      60
ccctcggata ccacttggcc actcccgctg aggccactcc cactgcgtgg ctgaagcctc     120
gaggtcacca ggcggaggcg cggagatgcc cctgcatcag ctgggggaca agccgctcac     180
cttccccagc cccaactcag ccatggaaaa cgggcttgac cacaccccac ccagcaggag     240
ggcatccccg ggcacacccc tgagccccgg ctccctccgc tccgctgccc atagcccccc     300
ggacaccagc aagcagcccc tctgccagct ctgggccgag aagcatggcg cccgggggac     360
ccatgaggtg cggtacgtct cggccgggca gagcgtggcg tgcggctggt gggccttcgc     420
accgccgtgc ctgcaggtcc tcaacacgcc caagggcatc ctgttcttcc tgtgtgcggc     480
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aaa                                                                 2763
```

Homo sapiens cDNA: FLJ21243 fis, clone COL01164.

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tagtaattat tttatggaaa tgttagcaat tctgtaccaa ctttgaataa aatgaaaaat 1860
ttaaaaaaaa aaaaaaaaaa 1880

ab38f03.s1 Stratagene HeLa cell s3 937216 Homo sapiens cDNA clone IMAGE:843101 3' similar to contains Alu repetitive element;, mRNA sequence.

ttttgagatg aagtctcgcg ctcttgtccc ctaggctgga gtgcaatgat gcgatcttgg 60
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ctttttgaag tacagtacta ataaactaag gactacctag agatcacact tttagatatt 360
atctatttta acatagatta aaaatactgt ttatatgaaa attaagctta aatacacgta 420
taggtaataa ttattttgcc catatacaag taatgtaaac agag 464

Homo sapiens KPL1 (KPL1) mRNA, complete cds.

```
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ctggtagcca ga                                                        1812
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Homo sapiens carboxypeptidase, vitellogenic-like, transcript variant 2, mRNA (cDNA clone MGC:10029 IMAGE:3888647), complete cds.

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1772

Homo sapiens teratocarcinoma-derived growth factor 1, mRNA (cDNA clone MGC:24110 IMAGE:4615416), complete cds.

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aaaaaaaa 1748

Homo sapiens lipase mRNA, complete cds.

```
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```

Homo sapiens v-fos FBJ murine osteosarcoma viral oncogene homolog, mRNA (cDNA clone MGC:11074 IMAGE:3688670), complete cds.

```
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aaaaaaaaaa aaaa                                                      1814
```

Homo sapiens endoplasmic reticulum lumenal Ca2+ binding protein grp78 mRNA, complete cds.

```
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aaggaactgg aagaaattgt tcaaccaatt atcagcaaac tctatggaag tgcaggccct    1920
cccccaactg gtgaagagga tacagcagaa aaagatgagt tgtag                    1965
```

Homo sapiens S100 calcium binding protein A2, mRNA (cDNA clone MGC:3847 IMAGE:3659591), complete cds.

```
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gagctggcac tctctgggag ggaggggggct gggagggaat gagtgggaat ggcaagaggc  180
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```

wa01c11.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2296820 3', mRNA sequence.

```
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ccta                                                               484
```

Human 150 kDa oxygen-regulated protein ORP150 mRNA, complete cds.

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tac 4503

Homo sapiens s-CaBP1 (CABP1) mRNA, complete cds.

```
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```

Homo sapiens cDNA FLJ12397 fis, clone MAMMA1002769, weakly similar to Homo sapiens cell cycle progression restoration 8 protein (CPR8) mRNA.

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agaaacaata aaactacacc atgag 1945

hn58g08.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3032126 3', mRNA sequence.

```
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```

Homo sapiens cDNA FLJ13465 fis, clone PLACE1003493, weakly similar to ENDOTHELIAL CELL MULTIMERIN PRECURSOR.

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aggccgaggc cggggccggg gccgcctccc tcaacgcctc ccttgacggc ctccacaacg 2280
cactcttcgc cactcagcgc agcttggagc agcaccagcg gctcttccac agcctctttg 2340
ggaacttcca agggctcatg gaagccaacg tcagcctgga cctggggaag ctgcagacca 2400
tgctgagcag gaaagggaag aagcagcaga aagacctgga agctccccgg aagagggaca 2460
agaaggaagc ggagcctttg gtggacatac gggtcacagg gcctgtgcca ggtgccttgg 2520
gcgcggcgct ctgggaggca ggatcccctg tggccttcta tgccagcttt tcagaaggga 2580
cggctgccct gcagacagtg aagttcaaca ccacatacat caacattggc agcagctact 2640
tccctgaaca tggctacttc cgagcccctg agcgtggtgt ctacctgttt gcagtgagcg 2700
ttgaatttgg cccagggcca ggcaccgggc agctggtgtt tggaggtcac catcggactc 2760
cagtctgtac cactgggcag gggagtggaa gcacagcaac ggtctttgcc atggctgagc 2820
tgcagaaggg tgagcgagta tggtttgagt taacccaggg atcaataaca aagagaagcc 2880
tgtcgggcac tgcatttggg ggcttcctga tgtttaagac ctgaacccca gccccaatct 2940
gatcagacat catggactcg cccagctctc ctcggcctgg ggctctggcc aaggatgggc 3000
tggaggtcat tcagttggtc tgtctcttcc ctggaaacct tctgcaaaga tggtgtggtg 3060
tacgtggctt ccctgtaacc acatggggct tggccatttc tccatgatga gaaggactgg 3120
aatgcttctc cgggcaggac atggtcctag gaagcctgaa ccttggcttg gcatgccttc 3180

```
tcagacagca cggcctgggc tccaactctt caccacaccc tgtattctac aacttctttg      3240
gtgttttgct cctcctgtgg ttggaaactt ctgtacaaca ctttaaactt ttctcttgct      3300
tcctcttctc ttctccctta tcgtatgata gaaagacatt cttccccagg aggaatgttt      3360
aaaatggagg caacattttg gccaacattg gaaagcacta gagggcaatg ggattaaacc      3420
aacctgcttg gtctctatta gtcagtaatg aagacgacag cctggccaac caagggaaag      3480
gaaattagta tctttagttt cagtcattcc ttgtaggata tggtttagct gtgcccccac      3540
ctaaaatatc atcttgaatt gtaatcccta taatccccac atcaagggag agatcaggtg      3600
gaggtaattg gatcttgggg gcggttcccc catgctgttc ttgtgatagt tctcacgaga      3660
tctgatgatt ttataagttt gatagttcct cctgtgttca ttctccttcc tgccaccttg      3720
tgaagatgcc ttggttcctc ttcactgtct gccatgattg taagtttcct gaggcctccc      3780
cagccatgtg gaacagtgag tcaattaaac ctctttcctt tataaatt                   3828
```

Homo sapiens heat shock 27kDa protein 1, mRNA (cDNA clone MGC:8509 IMAGE:2822325), complete cds.

```
ccgcctgcta aaaatacccg actggaggag cataaaagcg cagccgagcc cagcgccccg    60
cacttttctg agcagacgtc cagagcagag tcagccagca tgaccgagcg ccgcgtcccc   120
ttctcgctcc tgcggggccc cagctgggac cccttccgcg actggtaccc gcatagccgc   180
ctcttcgacc aggccttcgg gctgccccgg ctgccggagg agtggtcgca gtggttaggc   240
ggcagcagct ggccaggcta cgtgcgcccc ctgccccccg ccgccatcga gagccccgca   300
gtggccgcgc ccgcctacag ccgcgcgctc agccggcaac tcagcagcgg ggtctcggag   360
atccggcaca ctgcggaccg ctggcgcgtg tccctggatg tcaaccactt cgccccggac   420
gagctgacgg tcaagaccaa ggatggcgtg gtggagatca ccggcaagca cgaggagcgg   480
caggacgagc atggctacat ctcccggtgc ttcacgcgga aatacacgct gccccccggt   540
gtggacccca cccaagtttc ctcctccctg tcccctgagg gcacactgac cgtggaggcc   600
cccatgccca agctagccac gcagtccaac gagatcacca tcccagtcac cttcgagtcg   660
cgggcccagc ttgggggccc agaagctgca aaatccgatg agactgccgc caagtaaagc   720
cttagcccgg atgcccaccc ctgctgccgc cactggctgt gcctcccccg ccacctgtgt   780
gttcttttga tacatttatc ttctgttttt ctcaaataaa gttcaaagca ccccccaaaa   840
aaaaaaaaaa aaaaaaaaaa aaaaaaa                                       867
```

Homo sapiens carcinoembryonic antigen (CGM2) mRNA, complete cds.

```
ccatgggttc cccttcagcc tgtccataca gagtgtgcat tccctggcag gggctcctgc      60
tcacagcctc gcttttaacc ttctggaacc tgccaaacag tgcccagacc aatattgatg     120
tcgtgccgtt caatgtcgca gaagggaagg aggtccttct agtagtccat aatgagtccc     180
agaatcttta tggctacaac tggtacaaag gggaaagggt gcatgccaac tatcgaatta     240
taggatatgt aaaaaatata agtcaagaaa atgccccagg gcccgcacac aacggtcgag     300
agacaatata ccccaatgga accctgctga tccagaacgt tacccacaat gacgcaggat     360
tctataccct acacgttata aaagaaaatc ttgtgaatga agaagtaacc agacaattct     420
acgtattctc ggagccaccc aagccctcca tcaccagcaa caacttcaat ccggtggaga     480
acaaagatat tgtggtttta acctgtcaac ctgagactca gaacacaacc tacctgtggt     540
gggtaaacaa tcagagcctc ctggtcagtc ccaggctgct gctctccact gacaacagga     600
ccctcgttct actcagcgcc acaaagaatg acataggacc ctatgaatgt gaaatacaga     660
acccagtggg tgccagccgc agtgacccag tcaccctgaa tgtccgctat gagtcagtac     720
aagcaagttc acctgacctc tcagctggga ccgctgtcag catcatgatt ggagtactgg     780
ctgggatggc tctgatatag cagccttggt g                                    811
```

Homo sapiens keratin 7, mRNA (cDNA clone MGC:3625 IMAGE:3610347), complete cds.

ctcctcctcg cccgccgcta ggtccatccc ggcccagcca ccatgtccat ccacttcagc 60
tccccggtat tcacctcgcg ctcagccgcc ttctcgggcc gcggcgccca ggtgcgcctg 120
agctccgctc gccccggcgg ccttggcagc agcagcctct acggcctcgg cgcctcgcgg 180
ccgcgcgtgg ccgtgcgctc tgcctatggg ggcccggtgg gcgccggcat ccgcgaggtc 240
accattaacc agagcctgct ggccccgctg cggctggacg ccgacccctc cctccagcgg 300
gtgcgccagg aggagagcga gcagatcaag accctcaaca acaagtttgc ctccttcatc 360
gacaaggtgc ggtttctgga gcagcagaac aagctgctgg agaccaagtg gacgctgctg 420
caggagcaga agtcggccaa gagcagccgc ctcccagaca tctttgaggc ccagattgct 480
ggccttcggg gtcagcttga ggcactgcag gtggatgggg gccgcctgga ggcggagctg 540
cggagcatgc aggatgtggt ggaggacttc aagaataagt acgaagatga aattaaccgc 600
cgcacagctg ctgagaatga gtttgtggtg ctgaagaagg atgtggatgc tgcctacatg 660
agcaaggtgg agctggaggc caaggtggat gccctgaatg atgagatcaa cttcctcagg 720
accctcaatg agacggagtt gacagagctg cagtcccaga tctccgacac atctgtggtg 780
ctgtccatgg acaacagtcg ctccctggac ctggacggca tcatcgctga ggtcaaggca 840
cagtatgagg agatggccaa atgcagccgg gctgaggctg aagcctggta ccagaccaag 900
tttgagaccc tccaggccca ggctgggaag catggggacg acctccggaa tacccggaat 960
gagatttcag agatgaaccg ggccatccag aggctgcagg ctgagatcga caacatcaag 1020
aaccagcgtg ccaagttgga ggccgccatt gccgaggctg aggagcgtgg ggagctggcg 1080
ctcaaggatg ctcgtgccaa gcaggaggag ctggaagccg ccctgcagcg ggccaagcag 1140
gatatggcac ggcagctgcg tgagtaccag gaactcatga gcgtgaagct ggccctggac 1200
atcgagatcg ccacctaccg caagctgctg gagggcgagg agagccggtt ggctggagat 1260
ggagtgggag ccgtgaatat ctctgtgatg aattccactg gtggcagtag cagtggcggt 1320
ggcattgggc tgaccctcgg gggaaccatg ggcagcaatg ccctgagctt ctccagcagt 1380
gcgggtcctg ggctcctgaa ggcttattcc atccggaccg catccgccag tcgcaggagt 1440
gcccgcgact gagccgcctc ccaccactcc actcctccag ccaccaccca caatcacaag 1500
aagattccca cccctgcctc ccatgcctgg tcccaagaca gtgagacagt ctggaaagtg 1560
atgtcagaat agcttccaat aaagcagcct cattctgagg cctgagtgat ccacgtgaaa 1620
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa 1668

Homo sapiens hxCT mRNA for cystine/glutamate exchanger, complete cds.

```
cctgtgaaca ctatagcgct gagagagaca gtctgaaagc agaggaagac atcgatcagt      60
aacaccaaga gacaccaaag ttgaaagttt tgttttcttt ccctctgttt tatttttccc     120
ccgtgtgtcc ctactatggt cagaaagcct gttgtgtcca ccatctccaa aggaggttac     180
ctgcagggaa atgttaacgg gaggctgcct tccctgggca acaaggagcc acctgggcag     240
gagaaagtgc agctgaagag gaaagtcact ttactgaggg gagtctccat tatcattggc     300
accatcattg gagcaggaat cttcatctct cctaagggcg tgctccagaa cacgggcagc     360
gtgggcatgt ctctgaccat ctggacggtg tgtggggtcc tgtcactatt tggagctttg     420
tcttatgctg aattgggaac aactataaag aaatctggag gtcattacac atatattttg     480
gaagtctttg gtccattacc agcttttgta cgagtctggg tggaactcct cataatacgc     540
cctgcagcta ctgctgtgat atccctggca tttggacgct acattctgga accatttttt     600
attcaatgtg aaatccctga acttgcgatc aagctcatta cagctgtggg cataactgta     660
gtgatggtcc taaatagcat gagtgtcagc tggagcgccc ggatccagat tttcttaacc     720
ttttgcaagc tcacagcaat tctgataatt atagtccctg gagttatgca gctaattaaa     780
ggtcaaacgc agaactttaa agacgccttt tcaggaagag attcaagtat tacgcggttg     840
ccactggctt tttattatgg aatgtatgca tatgctggct ggttttacct caactttgtt     900
actgaagaag tagaaaaccc tgaaaaaacc attcccctg caatatgtat atccatggcc      960
attgtcacca ttggctatgt gctgacaaat gtggcctact ttacgaccat taatgctgag    1020
gagctgctgc tttcaaatgc agtggcagtg acctttctg agcggctact gggaaatttc     1080
tcattagcag ttccgatctt tgttgccctc tcctgctttg gctccatgaa cggtggtgtg    1140
tttgctgtct ccaggttatt ctatgttgcg tctcgagagg gtcaccttcc agaaatcctc    1200
tccatgattc atgtccgcaa gcacactcct ctaccagctg ttattgtttt gcacccttg     1260
acaatgataa tgctcttctc tggagacctc gacagtcttt tgaatttcct cagttttgcc    1320
aggtggcttt ttattgggct ggcagttgct gggctgattt atcttcgata caaatgccca    1380
gatatgcatc gtcctttcaa ggtgccactg ttcatcccag ctttgttttc cttcacatgc    1440
ctcttcatgg ttgccctttc cctctattcg gacccattta gtacagggat tggcttcgtc    1500
atcactctga ctggagtccc tgcgtattat ctctttatta tatgggacaa gaaacccagg    1560
tggtttagaa taatgtcagg gttcctagca ctgatgcctg cacaagcatg tgatatgtga    1620
aataaaatgg attcttctat agctaaatga gttccctctg gggagagttc tggtactgca    1680
atcacaatgc cagatggtgt ttatgggcta tttgtgtaag taagtggtaa gatgctatga    1740
agtaagtgtg tttgttttca tcttatggaa actcttgatg catgtgcttt tgtatggaat    1800
aaattttggt gcaatatgat gtcattcaac tttgcattga attgaatttt ggttgtattt    1860
atatgtatta tacctgtcac gcttctagtt gcttcaacca ttttataacc atttttgtac    1920
atattttact tgaaaatatt ttaaatggaa atttaaataa acatttgata gtttacataa    1980
taaaaaaaaa aaaaaaaaaa                                               2000
```

Homo sapiens eukaryotic translation elongation factor 1 alpha 2, mRNA (cDNA clone MGC:8362 IMAGE:2819899), complete cds.

```
cactgcagcc cccctcgccc tgagccagag cacccgggt cccgccagcc cctcacactc      60
ccagcaaaat gggcaaggag aagacccaca tcaacatcgt ggtcatcggc cacgtggact     120
ccggaaagtc caccaccacg ggccacctca tctacaaatg cggaggtatt gacaaaagga     180
ccattgagaa gttcgagaag gaggcggctg agatggggaa gggatccttc aagtatgcct     240
gggtgctgga caagctgaag gcggagcgtg agcgcggcat caccatcgac atctccctct     300
ggaagttcga gaccaccaag tactacatca ccatcatcga tgccccggc caccgcgact      360
tcatcaagaa catgatcacg ggtacatccc aggcggactg cgcagtgctg atcgtggcgg     420
cgggcgtggg cgagttcgag gcgggcatct ccaagaatgg gcagacgcgg gagcatgccc     480
tgctggccta cacgctgggt gtgaagcagc tcatcgtggg cgtgaacaaa atggactcca     540
cagagccggc ctacagcgag aagcgctacg acgagatcgt caaggaagtc agcgcctaca     600
tcaagaagat cggctacaac ccggccaccg tgcccttgt gcccatctcc ggctggcacg      660
gtgacaacat gctggagccc tccccaaca tgccgtggtt caagggctgg aaggtggagc      720
gtaaggaggg caacgcaagc ggcgtgtccc tgctggaggc cctggacacc atcctgcccc     780
ccacgcgccc cacggacaag cccctgcgcc tgccgctgca ggacgtgtac aagattggcg     840
gcattggcac ggtgcccgtg ggccgggtgg agaccggcat cctgcggccg ggcatggtgg     900
tgacctttgc gccagtgaac atcaccactg aggtgaagtc agtggagatg caccacgagg     960
ctctgagcga agctctgccc ggcgacaacg tcggcttcaa tgtgaagaac gtgtcggtga    1020
aggacatccg gcggggcaac gtgtgtgggg acagcaagtc tgacccgccg caggaggctg    1080
ctcagttcac ctcccaggtc atcatcctga accacccggg gcagattagc gccggctact    1140
ccccggtcat cgactgccac acagcccaca tcgcctgcaa gtttgcggag ctgaaggaga    1200
agattgaccg gcgctctggc aagaagctgg aggacaaccc caagtccctg aagtctggag    1260
acgcggccat cgtggagatg gtgccgggaa agcccatgtg tgtggagagc ttctcccagt    1320
acccgcctct cggccgcttc gccgtgcgcg acatgaggca gacggtggcc gtaggcgtca    1380
tcaagaacgt ggagaagaag agcggcggcg ccggcaaggt caccaagtcg gcgcagaagg    1440
cgcagaaggc gggcaagtga agcgcgggcg cccgcggcgc gaccctcccc ggcggcgccg    1500
cgctccgaac cccggccccgg cccccgcccc gcccccgccc cgcgcgccgc tccggcgccc    1560
cgcacccccg ccaggcgcat gtctgcacct ccgcttgcca gaggccctcg gtcagcgact    1620
ggatgctcgc catcaaggtc cagtggaagt tcttcaagag gaaaggcgcc cccgccccag    1680
gcttccgcgc ccagcgctcg ccacgctcag tgcccgtttt accaataaac tgagcgaccc    1740
caaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a                        1781
```

Homo sapiens cDNA clone:HEMBA1000726, 3' end, expressed in whole embryo mainly head.

gagacggagt ctcgctcttg tcacccaggt tggagtgcag tggcacaatc tcggctcact 60
gcaacctcca cctcctgtgt ttaaacgatt ctcctgcttc agcctcctga gtagctggaa 120
ttacaggccc tgccaccacc ccccccgctaa tttttgtcta ttttttttt ttagtagaga 180
cggggtttca ccatgttggc tagtctggtc ttgaactcct gactgacctc agacgaacca 240
cccgcctcag actcccaaag tgtcaggatt acaggcgtta gccaccatac ctggcctgct 300
cccagttttt acaagatgtt aattcccaat aatctgagag caatgtgtta atatgaatat 360
taattcttct aaatgaatat tcatccttat ttcctacttg tataggtgga tgaataaaga 420
tccaatagta taatagaaag actattagta agaatgccag aaggncagtc tcatgcacct 480
ggtgaaataa accaaccaac caacctgaan tctaaagctt gngtggcaag taccactgtg 540
gggaagtgta gaattaacnc tcttttccta agggtc 576

Homo sapiens MDG1 mRNA, complete cds.

```
tagctggctg agaggggact gggcgccggc ggggaaggag gagcgctagg tcggtgtacg      60
accgagatta gggtgcgtgc cagctccggg aggccgcggt gaggggccgg gcccaagctg     120
ccgacccgag ccgatcgtca gggtcgccag cgcctcagct ctgtggagga gcagcagtag     180
tcggagggtg caggatatta gaaatggcta ctccccagtc aattttcatc tttgcaatct     240
gcattttaat gataacagaa ttaattctgg cctcaaaaag ctactatgat atcttaggtg     300
tgccaaaatc ggcatcagag cgccaaatca agaaggcctt tcacaagttg gccatgaagt     360
accaccctga caaaaataag agcccggatg ctgaagcaaa attcagagag attgcagaag     420
catatgaaac actctcagat gctaatagac gaaaagagta tgatacactt ggacacagtg     480
cttttactag tggtaaagga caaagaggta gtggaagttc ttttgagcag tcatttaact     540
tcaattttga tgacttattt aaagactttg gctttttggg tcaaaaccaa aacactggat     600
ccaagaagcg ttttgaaaat catttccaga cacgccagga tggtggttcc agtagacaaa     660
ggcatcattt ccaagaattt tcttttggag gtggattatt tgatgacatg tttgaagata     720
tggagaaaat gttttctttt agtggttttg actctaccaa tcagcataca gtacagactg     780
aaaatagatt tcatggatct agcaagcact gcaggactgt cactcaacga agaggaaata     840
tggttactac atacactgac tgttcaggac agtagttctt attctattct cactaaatcc     900
aactggttga ctcttcctca ttatctttga tgctaaacaa ttttctgtga actattttga     960
caagtgcatg atttcacttt aaacaatttg atatagctat taaatatatt taagggtttt    1020
ttttttttg acaaattcaa cattcaacga gtagacaaaa tgctaattat ttccctgatt    1080
aggaaagttt ctttaaaaaa cacgtaattt tgcctagtgc tttttctcta cctgcccttg    1140
ggctcactaa tatcaccagt attattacca agaaaatatt gagtttacct gattaaactt    1200
taaaagttaa ttgtagattt aaattgtgtg aacctaatga ttttgcagt gaaaccttta    1260
ctaattcaaa gttgcatgtt ctatgacatc tgtgacttgc gttgcagagt gtacatgaaa    1320
ctgtataatt gagtcattca gtaaaggaga acagtatctt ggttaattgc tactgaaagg    1380
ttgagaaagg aatggtttga tatttaccac agcgctgtgc ctttctacag tagaactggg    1440
gtaaaggaaa tggttttatt gcccatagtc atttaggctg gaaaaaagtt gaaaacttaa    1500
cgaaatattg ccaagagatt gttatgtgtt tggttccagc ctaaaaatga ttttgtagtg    1560
ttgaaatcat agctacttac atagcttttt catatttctt tcttagttgt tggcactctt    1620
aggtcttagt atggatttat gtgtttgtgt gtgtgtagtt tatcctctct ctcatcttta    1680
tctagagatt gactgatacc tcattctgtt tgtaaaacca gccagtaatt tctgtgcaac    1740
cttactatgt gcaatatttt taaatcctga gaaatgtgtg cttttgtttt cggatagact    1800
tatttcttta gttctgcact tttccacatt atactccata tgagtattaa tcctatggat    1860
acatattaaa acaagtgtct catacaacat tgtatgtgag agaaatataa atatttacaa    1920
cctgaaaaa                                                           1929
```

Homo sapiens prostate stem cell antigen (PSCA) mRNA, complete cds.

agggagaggc agtgaccatg aaggctgtgc tgcttgccct gttgatggca ggcttggccc 60
tgcagccagg cactgccctg ctgtgctact cctgcaaagc ccaggtgagc aacgaggact 120
gcctgcaggt ggagaactgc acccagctgg gggagcagtg ctggaccgcg cgcatccgcg 180
cagttggcct cctgaccgtc atcagcaaag gctgcagctt gaactgcgtg gatgactcac 240
aggactacta cgtgggcaag aagaacatca cgtgctgtga caccgacttg tgcaacgcca 300
gcggggccca tgccctgcag ccggctgccg ccatccttgc gctgctccct gcactcggcc 360
tgctgctctg gggacccggc cagctatagg ctctgggggg ccccgctgca gcccacactg 420
ggtgtggtgc cccaggcctt tgtgccactc ctcacagaac ctggcccagt gggagcctgt 480
cctggttcct gaggcacatc ctaacgcaag tttgaccatg tatgtttgca ccccttttcc 540
ccnaaccctg accttcccat gggccttttc caggattccn accnggcaga tcagttttag 600
tganacanat ccgcntgcag atggcccctc caaccntttn tgttgntgtt tccatggccc 660
agcattttcc acccttaacc ctgtgttcag gcacttnttc ccccaggaag ccttccctgc 720
ccaccccatt tatgaattga gccaggtttg gtccgtggtg tcccccgcac ccagcagggg 780
acaggcaatc aggagggccc agtaaaggct gagatgaagt ggactgagta gaactggagg 840
acaagagttg acgtgagttc ctgggagttt ccagagatgg ggcctggagg cctggaggaa 900
ggggccaggc ctcacatttg tggggntccc gaatggcagc ctgagcacag cgtaggccct 960
taataaacac ctgttggata agccaaaaaa 990

Human arginine-rich protein (ARP) gene, complete cds.

```
cttcggtcct gctgtagtgc cttctgcgcc aggcccggtt caatcagcgg ccacaactgt    60
ctagggctca gacaccacca gccaatgagg gagggcacgt ggagccgcgt ctgggctcgc   120
ggctcctgac caatggggaa gtggcatgtg ggagggcgcc ggggttcccc ccgccaatgg   180
ggagctacgg cgcgcggccg ggacttggag gcggtgcggc gcggcgggtg cggttcagtc   240
ggtcggcggc ggcagcggag gaggaggagg aggaggagga tgaggaggat gaggaggatg   300
tgggccacgc aggggctggc ggtgcgcgtg gctctgagcg tgctgccggg cagccgggcg   360
ctgcggccgg gcgactgcga agtttgtatt tcttatctgg gaagatttta ccaggacctc   420
aaagacagag atgtcacatt ctcaccagcc actattgaaa acgaacttat aaagttctgc   480
cgggaagcaa gaggcaaaga gaatcggttg tgctactata tcggggccac agatgatgca   540
gccaccaaaa tcatcaatga ggtatcaaag cctctggccc accacatccc tgtggagaag   600
atctgtgaga agcttaagaa gaaggacagc cagatatgtg agcttaagta tgacaagcag   660
atcgacctga gcacagtgga cctgaagaag ctccgagtta aagagctgaa gaagattctg   720
gatgactggg gggagacatg caaaggctgt gcagaaaagt ctgactacat ccggaagata   780
aatgaactga tgcctaaata tgcccccaag gcagccagtg caccgaccga tttgtagtct   840
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tttctagctg tcaaaaaaaa aaa                                         1103
```

Homo sapiens interleukin 11 receptor, alpha, transcript variant 1, mRNA (cDNA clone MGC:2146 IMAGE:3502059), complete cds.

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Homo sapiens mRNA; cDNA DKFZp56402071 (from clone DKFZp56402071); complete cds

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ttaaaacaaa aaaaaaaaaa aaaaaaaa

Homo sapiens collagen alpha 3 type IX (COL9A3) mRNA, complete cds.

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gtacagtaaa ttctctccca 2480

Homo sapiens cDNA FLJ20113 fis, clone COL05437.

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aaaaaaa 1747

01763146F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4026010 5', mRNA sequence.

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Human plasma serine protease (protein C) inhibitor mRNA, complete cds.

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ttttg 2106

Homo sapiens DKFZP586A0522 protein, mRNA (cDNA clone MGC:5320 IMAGE:2900478), complete cds.

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Homo sapiens calcium binding protein 1 (calbrain), mRNA (cDNA clone

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Homo sapiens TNNT1 gene, exons 1-11 (and joined CDS)

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tggatgatca aagcagcaaa aagaagacgc aagagaagag ccacacagtc tcttttggaa 16620
gctgcaccag tgacctgctt tcgtctgagt agcaccccta cctgcaagga gattgggcaa 16680
gtagatttt 16689

Homo sapiens negative growth-regulatory protein MyD118 (MYD118) mRNA, complete cds.

```
ccgcatccac tgtggattat aattgcaaca tgacgctgga agagctcgtg gcgtgcgaca    60
acgcggcgca gaagatgcag acggtgaccg ccgcggtgga ggagcttttg gtggccgctc   120
agcgccagga tcgcctcaca gtgggggtgt acgagtcggc caagttgatg aatgtggacc   180
cagacagcgt ggtcctctgc ctcttggcca ttgacgagga ggaggaggat gacatcgccc   240
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gggtgtcggg caatgcgcgc ctggcgcagc tcctgggaga gccggccgag acccagggca   360
ccaccgaggc ccgagacctc cactgtcttc ccttcctaca gaaccctcac acggacgcct   420
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aacccccca aaacaaccca acccacgagg accatcgggg gcaggtcgtt ggagactgaa   660
gagaaagaga gagaggagaa gggagtgagg ggccgctgcc gccttcccca tcacggaggg   720
tccagactgt ccactcgggg gtggagtgag actgactgca agccccaccc tccttgagac   780
tggagctgag cgtctgcata cgagagactt ggttgaaact tggttggtcc ttgtctgcac   840
cctcgacaag accacacttt gggacttggg agctggggct gaagttgctc tgtaccccatg   900
aactcccagt ttgcgaatta ataagagaca atctattttg ttacttgcac ttgttattcg   960
aaccactgag agcgagatgg gaagcataga tatctatatt tttatttcta ctatgagggc  1020
cttgtaataa atttctaaag cctcaaaaaa                                   1050
```

yz12f12.s1 Soares_multiple_sclerosis_2NbHMSP Homo sapiens cDNA clone IMAGE:282863 3', mRNA sequence.

```
tggagaagga aggacagttt ttcttcctcc aagagtacca atttgaccac tcccactaac     60
ctcactcagc aaacaaaaca ggatgtagac ctggtttgct aaggagtttt aatgagttct    120
gtttcctgaa attaacagtg attagttaca ccaagcaaga gaagatataa tgtctcgctt    180
tcacatttgc aaagaatact atggctaacc ctcatccccc actgcgcatg caacacagcg    240
tcggccctcc tgataccctc agctcttcac aaacgtggcg ttcatacagc ttgctcagct    300
tgtcccagaa ggtccatttg gttcccaaag cacactcaag gttttgtgtt tgctttcatt    360
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ctggctggtc cacgctggcc ttcagcatgg ccaataagct ctttcctggc tcgcntttga    540
gaatgatctg tgctgggana cctccctaan ggatgaagg                           579
```

Homo sapiens synaptogyrin 3, mRNA (cDNA clone MGC:20003 IMAGE:4334996), complete cds.

cagcggcctc gggcggggcc ggccggacgg acaggcggac agaaggcgcc aggggcgcgc 60
gtcccgcccg ggccggccat ggagggcgcc tccttcggcg cgggccgcgc aggggccgcc 120
ctggaccccg tgagctttgc gcggcggccc cagaccctgc tccgggtcgc gtcctgggtg 180
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cccgagctgc gctgcgtgtt caacgggaac gcgggcgcct gccgcttcgg cgtcgcgctg 300
ggcctcggag ccttcctcgc ctgcgccgcc ttcctgctgc tcgatgtgcg cttccagcaa 360
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ggctatccgg tgggcagcgg cgtggagggc accgagacct accagagccc gcccttcacc 720
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ttacattgta gcctagacca attctgtgtg gatatttaag tgaacatgtt tacaattttt 1860
gtatatatca ctctctccct ctcctgaaag accagagatt gtgtattttc agtgtcccat 1920
gttccgactg caccttcttt acaataaaga ctgtaactga gctgactgtg aaaaaaaaaa 1980
aaaaaaaaaa aaaaaa 1996

Human 14 kd lectin mRNA, complete cds.

```
cttctgacag ctggtgcgcc tgcccgggaa catcctcctg gactcaatca tggcttgtgg      60
tctggtcgcc agcaacctga atctcaaacc tggagagtgc cttcgagtgc gaggcgaggt     120
ggctcctgac gctaagagct tcgtgctgaa cctgggcaaa gacagcaaca acctgtgcct     180
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tgttgcagag gtgtgcatca ccttcgacca ggccaacctg accgtcaagc tgccagatgg     360
atacgaattc aagttcccca accgcctcaa cctggaggcc atcaactaca tggcagctga     420
cggtgacttc aagatcaaat gtgtggcctt tgactgaaat cagccagccc atggccccca     480
ataaaggcag ctgcctctgc tcccctg                                        507
```

Homo sapiens monocarboxylate transporter 2 (MCT2) mRNA, complete cds.

cgggcgccca ccctgcgcca gagaccagat aaagatcaat cttaagatgt gatactttcc 60
tgtgaaacct gaaacaaggt gatctgggga accaaagact ctgggactct tggtgccaac 120
agagttactc tgttacttga atttccacta gaggagcaga aatgccacca atgccaagtg 180
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tagaaagaat ccatgctata ggtttatttc catacctgac tctgggtgtg gtggttaaaa 1860
tactaatttt aaagtcttcc agtgactttc ggtcttggtt atatgga 1907

H.sapiens mRNA for gonadotropin-releasing hormone receptor, splice variant.

atggcaaaca gtgcctctcc tgaacagaat caaaatcact gttcagccat caacaacagc 60
atcccactga tgcagggcaa cctccccact ctgaccttgt ctggaaagat ccgagtgacg 120
gttactttct tccttttttct gctctctgcg acctttaatg cttctttctt gttgaaactt 180
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tcaggacccc cacgaactac aactgaatca gtccaagaac aatataccaa gagcacggct 660
gaagactcta aaaatgacgg ttgcatttgc cacttcattt actgtctgct ggactcccta 720
ctatgtccta ggaatttggt attggtttga tcctgaaatg ttaaacaggt tgtcagaccc 780
agtaaatcac ttcttctttc tctttgcctt tttaaaccca tgctttgatc cacttatcta 840
tggatatttt tctctgtga 859

Homo sapiens midline 1 (MID1) mRNA, complete cds.

ctttttttgg ccgggccgca tgaatccggc cagcccaccc tgcttgaagg acctacaggt 60
ttgtctcttc cagatcagaa ctgaggaaca aaaaccccca tcctgggaaa aatggggaag 120
ctgatttcgc cgggttgctt ttgtcttgcg ggctcctgtc gggttcggtg tttccgctct 180
gaagactgcg acgcgggctc cgatgcagct cgctccctgc cggatgggtc atgggattct 240
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gaggaccctc ttctactgcc ctgcgcacac agcctctgct tcaactgcgc ccaccgcatc 420
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ggacattgta taaagtacta tttgctagat tcatgcctca aaagttatta taaacagacc      3480
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agagttgtaa gaccaaaaaa aaaaaaaaaa aaaaa                                 3575
```

Homo sapiens IL-1 receptor accessory protein mRNA, complete cds.

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tttgaagatg agccagctcg catcaagtgc ccactctttg aacacttctt gaaattcaac     180
tacagcacag cccattcagc tggccttact ctgatctggt attggactag gcaggaccgg     240
gaccttgagg agccaattaa cttccgcctc cccgagaacc gcattagtaa ggagaaagat     300
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aaaaatgcag tgccccctgt gatccattca cctaatgatc atgtggtcta tgagaaagaa     780
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Homo sapiens clone FLB0708 mRNA sequence.

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